

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Advice from Subscribers
Our Children Will Benefit
Television 'Westerns' and
Consulting Engineers
Add Typo Errors
Over-50 Sunshine

Stories of the Week

"You ain't so smart," a gal-about-town sniffed to Mr. Gossip Kolyumist, "I was the person who made Joe Blow a millionaire, instead of what you wrote."

"Indeed?"

"Yep. He was a multi-millionaire before he met me."

Hear about the advertising agent who worried about losing a client so much his hair turned charcoal gray?

Near Lima, Ohio, some wag put up a sign:

"Look out for our children, especially when they're driving cars."

Advice from Subscribers

Be kind, for everyone you meet is fighting a hard battle.—
DR. JOHN WATSON.

The fate of a generation may depend upon the good digestion of a Sunday School teacher.—
MASON ROBERTS.

Man has invented automation to save labor, but he works harder than before. He has stopped driving donkeys and started driving himself —
CARL BUCHOLZER.

Give less thought to what people are thinking of you, and you will have more time to think well of them.—"Tex" COLBERT.

Our Children Will Benefit

Instead of accepted pain or local anesthetics, refrigeration is the New Deal in Dentistry! That's good news for everyone in our industry; also good news for anyone with a toothache or a cavity.

A refrigerated device (now in experimental production) directs a pin-point stream of cold air on the gums.

Gradually the temperature of that jet of air is reduced to the freezing level for dental patients.

Result: no pain, no after-effect, during dentistry.

According to "Inside Info" this boon to mankind will be marketed in 1959.

(Concluded on Page 18, Col. 1)

RACCA Sets Program for Convention

CLEVELAND — Complete program planned for the 13th annual convention of the Refrigeration & Air Conditioning Contractors Association was announced recently by Tom Alexander, chairman of the convention.

The convention will be staged Oct. 12-14 at the Broadmoor hotel, Colorado Springs, Colo.

Feature of the gathering will be a "Teamwork Clinic" to provide an exchange of problem solving techniques and ideas among members. Dean Michael Kolivosky of Hillsdale (Mich.) college will conduct the clinic using the "Phillips 66 Method" that allows everyone an opportunity to express his views and opinions.

Convention program follows:

SUNDAY, OCT. 12

9:30 a.m.—Board of directors meeting, Grand Ballroom.

10 a.m.—Registration. West entrance to ballroom.

6 p.m.—Annual reception and (Concluded on Page 7, Col. 4)

Room Unit Tax Hearing May Be Late In Sept.

WASHINGTON, D. C.—The air conditioning industry is still awaiting word from the U. S. Internal Revenue Service officials as to the date for a hearing or conference on the proposed revision of Revenue Ruling 54-462, which would impose the 10% excise tax on all room air conditioners, and possibly on all self-contained air conditioning equipment which provides free delivery of air.

It is thought that the conference or hearing will be held around the end of September.

The Room Air Conditioner Section of National Electrical Manufacturers Association (NEMA) has held a meeting to establish its viewpoint with respect to the proposed tax revision, and the Room Air Conditioner Section of the Air-Conditioning & Refrigeration Institute (ARI) was reportedly holding a similar meeting at the end of last week. It is believed that these two groups will coordinate their efforts to obtain a hearing date satisfactory. (Concluded on Page 4, Col. 5)

2 Detroit Groups Move To Upgrade Heating Installations

Taking advantage of National Home Week, nearly 200 Detroit area heating contractors last week publicly guaranteed their customers a quality heating installation.

Organized into two separate groups with a single purpose—upgrading heating installations—they put their money where their mouths are. One, the Mueller Climatrol Heating & Air Conditioning Dealer Council of Greater Detroit, requires members to pay into a guarantee fund. The other, the Better Heating & Cooling Bureau, drew up its own residential warm air heating code and is pushing to make it law. Read details on both groups below.

Weekly Ads Offer 100% Protection

By George M. Hanning

DETROIT—A series of 10 weekly newspaper advertisements offering "100% protection for you who buy, specify, or finance warm air heating equipment" was launched last week by the Mueller Climatrol Heating and Air Conditioning Dealer Council of Greater Detroit.

The council, the first advertisement declared, "guarantees in writing that furnace, supply, and return air ducts and piping will be properly sized and installed to National Warm Air Heating & Air Conditioning Association standards."

The council, organized last April, is comprised of some 70 "qualified" Mueller Climatrol contractors in six counties around Detroit. While the council is contractor-run, according to Robert Segal, secretary, equal financial support is provided by Mueller Climatrol and its distributor in this area, Warren Plurabing Supply Co.

All new complete Climatrol warm-air installations by a member of the dealer council will carry the individual guarantee of the installing contractor backed by the cooperative (Concluded on Page 8, Col. 1)

'Freedom of Movement' Is Aim of Sept. 16 Bay Area Meeting

SAN FRANCISCO—An effort to establish a greater Bay Area agreement with "freedom of movement" is again under way with a meeting scheduled for Tuesday, Sept. 16, in San Francisco.

Representatives of Refrigeration & Air Conditioning Contractors Association of Northern California will meet with representatives of United Association locals.

Locals invited include San Jose 393, San Mateo 467, San Francisco 38, Richmond 159, Vallejo & Napa 343, Oakland steamfitters and refrigeration 342, Oakland plumbers 444, and Sacramento 447.

'Guaranteed Comfort' Tied to Proposed Code

DETROIT — A "guaranteed comfort" program based upon adherence to a newly-drafted residential warm air heating code was launched here recently by the Better Heating and Cooling Bureau.

The program is strikingly similar to the National Warm Air Heating and Air Conditioning Association's Silver Shield program.

The Better Heating and Cooling Bureau consists of heating contractors who belong to the Air Conditioning Institute and some "independents" also having labor agreements with the Sheet Metal Workers International. (Concluded on Page 33, Col. 2)

NCRSA Reports 10% Sales Rise

PHILADELPHIA — An average increase of more than 10% in total dollar sales for the second quarter of 1958 was reported by members of the National Commercial Refrigerator Sales Association in the group's quarterly business conditions survey.

For the first half of the year, sales were 4.33% higher than in the corresponding period of 1957, Marie Lawton, executive secretary, reported. Net profit before taxes for the six months was 15.32% higher than in the same period last year.

June 30 inventory was 2.4% higher than last year while accounts receivable on that date were up 11.66%.

Miller Is President Of Holly-General

PASADENA, Calif. — Appointment of Robert K. Miller as president of Holly-General Div., Siegler Corp., manufacturer of air conditioning and heating units, has been announced.

Miller was formerly general manager of General Electric Co.'s Home Heating and Cooling Dept. At Holly-General, he succeeds W. J. Keegan, who has resigned.

BEHIND PAGE ONE . . .

INDUSTRIAL Air Conditioning

Cutting Cooling Load 25% by Insulating Wins Clothing Plant Air Conditioning Contract..... 9

COMMERCIAL Air Conditioning

880 Sun Control Louvers Will Reduce Load In Air Conditioned Reynolds Metals Bldg..... 16

RESIDENTIAL Air Conditioning

Detroit Heating and Cooling Contractors Plan Guaranteed Comfort Program..... 33

• How Builder Can Merchandise Heating

10

• Room Air Conditioner News.....

13

• World Trade News.....

15

• Commercial, Industrial Cooling Survey

(3) Purchasing Patterns..... 20

• Heat Pump Enters Automotive

Cooling

21

• Modern Tools, Instruments (2).....

24

• Report on Education

3. College Credit—Technical Institutes..... 26

• Air Distribution Requirements.....

28

• Consulting Engineer's Column

Fenestra Sections as Supply Ducts..... 30

July Air Conditioner Sales Hot In 3 Cities

DETROIT — July air conditioner sales figures were rosy in Washington, D. C., Knoxville, Tenn., and Bridgeport, Conn.; but in some other areas of the country, they suffered from rain and cold weather, sales reports from local utilities indicate.

Dehumidifiers took advantage of muggy weather conditions to boost sales considerably.

Electric Institute of Washington reported that July dehumidifier sales soared to 2,206

units as compared with 638 in the same month last year. At the same time, air conditioner sales jumped 73.5% to 3,942 units as compared with 2,272 in July, 1957.

The July upsurge brought air conditioner sales for the first seven months to 19,145 units, close to the 21,838 sold in the same period last year.

Air conditioner sales in the Knoxville area expanded by (Concluded on Page 8, Col. 4)

Make Your **FIRST CHOICE**

READING COPPER TUBING

Made by
Copper Tube SPECIALISTS



SECOND to NONE
for Refrigeration &
Air Conditioning Equipment

READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

Newton Named To Head Engineering At York Div.

YORK, Pa.—Alwin B. Newton has been named director of engineering of York Div., Borg-Warner Corp., it was announced by Ray K. Serfass, vice president and director of operations.

In this capacity Newton is responsible for all research and product development at York.

He returns to York after an absence of some 25 years since he started his career in the air conditioning and refrigeration industry as a college graduate



A. B. Newton

engineer student in the York Institute in 1932.

From 1936 to 1944 he was manager of the Refrigeration Div. of Minneapolis-Honeywell Regulator Co. He was chief engineer of the Airtemp Div. of Chrysler Corp. from 1944 to 1949, and vice president of design and research for the Coleman Co. from 1953 to 1958. He also served as a member of the Coleman board of directors.

Newton has 160 patents related to the air conditioning and refrigeration industry and has been a spokesman for the industry on numerous current developments.

American Air Filter Charges Farr with Patent Infringement

LOUISVILLE, Ky.—American Air Filter Co., Inc. has filed suit in U. S. District Court for patent infringement against the Farr Co., Los Angeles.

The suit is based on an invitation for a method and apparatus for filtering air. The patent involved covers filters sold by American Air Filter under the trade-marks "ROLL-O-MATIC" and "ROLL-O-VENT," which employ a roll of compressible and expansible filtering material.

The suit asks for injunctive restraint against the manufacture and sale of allegedly infringing equipment which is being sold by Farr, as well as monetary damages for past sales.

A suit under the same patent was filed against Continental Air Filters, Inc., Louisville, in January, 1958. This suit is still pending.

Sporlan Promotes R. E. Niedermeier

ST. LOUIS—R. E. Niedermeier, who formerly serviced Sporlan Valve Co.'s Kansas City territory and a Sporlan sales engineer since 1954, has been promoted to product sales manager for thermostatic expansion valves and refrigerant distributors.



Niedermeier

A graduate of Evansville college (Indiana), Niedermeier holds a B.S. degree in engineering. Prior to joining Sporlan he was service manager for a large, midwest refrigeration equipment manufacturer.

Coleman Seven Month Sales Hit \$20,123,073

WICHITA, Kan.—The Coleman Co., Inc. reported consolidated net sales in the first seven months of 1958 were \$20,123,073.

Earnings after taxes were \$333,027 or 75 cents per share of common stock. In the same period last year sales were \$20,055,838 with an operating loss of \$330,139.

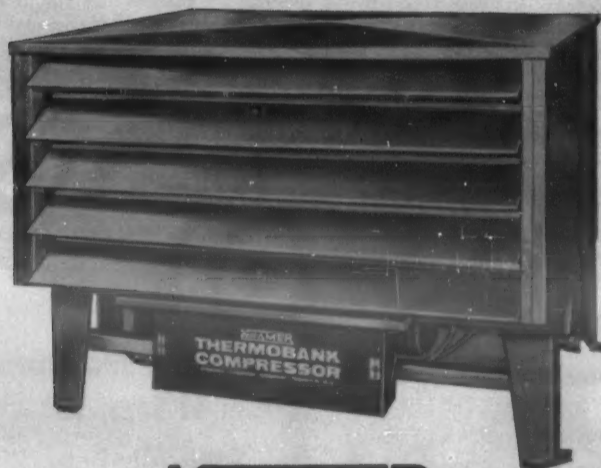
At its regular third-quarter meeting, the Coleman board of directors declared a dividend of 58½ cents a share on preferred stock payable Sept. 12 to stock of record Aug. 29.

LOST

space in your building

FOUND

with



KRAMER

OUTDOOR COMPRESSOR

Why lose dollar-making storage and selling space to house compressors, when you can now use the Kramer Outdoor Compressor? The THERMOBANK COMPRESSOR SYSTEM is factory assembled, tested and run-in; it saves installation time and money.

The refrigeration industry again finds Kramer blaz-

ing a new path with its THERMOBANK SYSTEM—the original and only automatic re-evaporating, non-overloading, fastest hot gas defrost system—now engineered to perform unfailingly, not only in a heated space but in any unheated space or outside at any outdoor temperature.

WRITE FOR BULLETIN TC 406A

KRAMER TRENTON CO. Trenton 5, N. J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER



WHY A .300 HITTER IS BIG STUFF!

Very simple. Because he's better than average. What's your authority? The record books of baseball confirm the fact that the average player does not get three hits in ten times at bat—and that a man who can is, therefore, a bargain.

Do you have any records that tell you whether the compressors and condensing units you buy are the best on the market today? Any records to prove your reject rate is as low as you can get it?

Do you know for certain what is par for compressor performance?

If you haven't compared them with other makes in actual field use, you have no standard. We believe the compressors we're delivering now—because of the new Bendix-Westinghouse methods of quality control—are the best performing units on today's market. But we can't prove we can save you money until you make us prove it with a trial order. How about it?

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio
Export Sales: Bendix International, 205 E. 42nd St., New York 17, N. Y.

11th Air Conditioning & Refrigeration Industry Show Planners Meet Sept. 23

WASHINGTON, D. C.—Preparations for the 11th Industry Exposition of the Air-Conditioning & Refrigeration Institute will get under way here Sept. 23, when the newly-appointed Exposition Committee will hold its first meeting at ARI headquarters, it was announced by Robert H. Luscombe, manager of marketing, Penn Controls, Inc., chairman.

The Exposition will be held in Atlantic City, N. J. Nov. 2-5, 1959.

Members of the committee, as announced by D. V. Petrone, president of ARI, include:

Byron Halstead, senior partner, Halstead & Mitchell; R. H. Israel, sales manager, Refrigeration Dept., Virginia Smelting Co.; B. E. James, president,

McQuay, Inc.; George E. Mills, ARI show director; John Morrill, general manager, Evansville Div., Bendix-Westinghouse Automotive Air Brake Co.; J. A. Mulcahey, vice president and director of sales, Dunham-Bush, Inc.; Austin Rising, vice president, York Div., Borg-Warner Corp.; and W. A. Siegfried, president, Superior Valve & Fittings Co.

"Already plans are in progress to make the 11th Exposition the most complete in the history of shows staged by ARI and its predecessor organizations, from the standpoint of both exhibitors and visitors," it was stated.

"A special feature planned for the show will be an ARI presentation showing the essen-

tiality of the refrigeration cycle to the American way of life—how it has come to be depended upon by business and industry, medicine and research, chemistry and atomic development, and in many other fields, some of which could not even have been developed without mechanical cooling and dehumidification.

"The display also will portray the benefits of air conditioning in the home, the office, the plant, as well as how refrigeration has changed America's eating habits and the menus served at home, in restaurants and hotels, and to the nation's armed forces."

Another segment of the display will depict the vital necessity of mechanical cooling to national defense, according to Mills. He said literature descriptive of the show will start going out from the Exposition offices in November.

Manhattan Airy-Go-Round

Cooling Gets Supporting Role on Broadway

"If all theaters are made comfortable all year-round," suggests Samuel H. Schwartz, who operates the St. James Theater on "Broadway," "it's possible we may return to the conditions of the Twenties, when the theater season used to open in July."

"Then you will not have this theater jam we have now and everything will be easier," he told the New York Times.

Backing his words with action, Sam is air conditioning his own theater—not only the auditorium but the actors' dressing rooms as well.

Nearby, the Helen Hayes theater is planning a new marquee that will air condition the area beneath it in summer and heat it in winter.

The Equitable Life Assurance Society didn't get where it is today by taking unnecessary risks. It is not taking any in erecting the world's largest single occupancy office structure under private ownership on Manhattan's Avenue of the Americas either. The 42-story building will cost an estimated \$58 million and will be zone air conditioned.

But Equitable plans to try out the air conditioning and other building materials first. To do so it is constructing a full scale experimental building two stories high in one corner of the block square site.

The pilot or mockup structure, costing two-tenths of one per cent of the estimated building cost, will result in substantial savings through tests and studies of materials and furnishings, Equitable believes.

No port in the United States can match New York's 33 million cu. ft. of public cold storage capacity, boasts the Port of New York Authority.

Shelled almonds from Spain, cashews from India, frozen fish from Iceland, canned hams from Holland and pears from Argentina are just a few of the many commodities, including 250 edible products, found in cold storage or cooling rooms of the refrigerated warehouses.

Excise Tax Hearing-

(Concluded from Page 1, Col. 3)

tory to all parties.

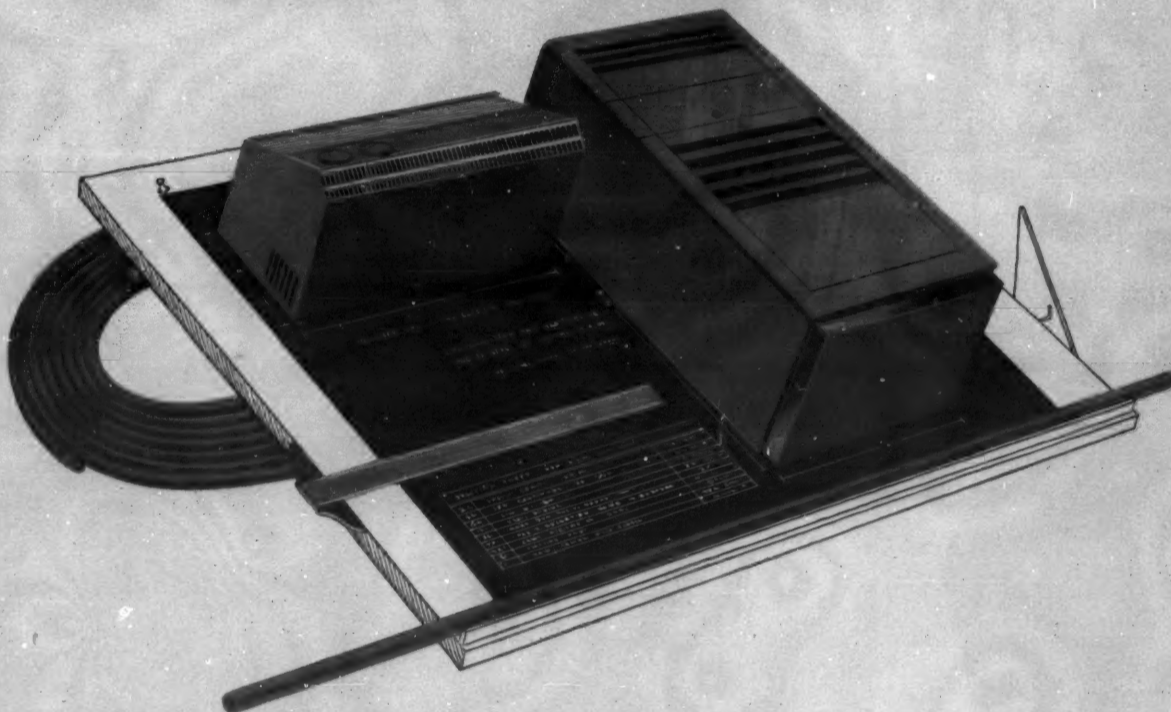
While the NEMA group did not make a formal release of its planned recommendations to IRS on the proposed tax revision, industry sources believe the main points will be these:

1. That the tax be applied only against all models of units intended as room coolers.
2. That an early effective date be set for application of the new ruling, to prevent an advantage being gained by manufacturers who develop a lot of production if there was any substantial delay in applying the tax.
3. That all existing inventory (in the hands of manufacturers as well as in the hands of distributors and dealers) be exempt from the tax.

It is also understood that the NEMA group is asking its member manufacturers for their feeling about the establishment of a "lobby" effort during the next Congress to at least reduce the tax to 5%, and thus keep it in line with other appliance excise taxes.

There is a growing feeling among manufacturers that the IRS may attempt to apply the tax to self-contained air conditioners other than room coolers, on the basis that this is necessary to bring tax revenues up to "anticipated goals."

For your REFRIGERATION, AIR CONDITIONING and HEATING UNIT NEEDS . . .



Specify Quality-Controlled PHELPS DODGE COPPER TUBE!

- All tempers and sizes for use in original equipment.
- Straight length tube tempered to meet your bending and expanding specifications.
- Quality-controlled throughout manufacture to assure finest tube properties.
- Tubes degreased and capped, or dehydrated and sealed, if required.
- Deliveries geared to your production requirements.

*First for Lasting Quality
from Mine to Market!*



**PHELPS DODGE COPPER PRODUCTS
CORPORATION**

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Detroit, Fort Wayne, Greensboro, N. C., Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Washington, D. C.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

Young Radiator, Perfex Settle Law Suit Without Trial

RACINE, Wis.—A final settlement has been made without trial in the law suit brought by Young Radiator Co. here against Perfex Corp., Milwaukee, and Hiram J. Kinkade, also of Milwaukee, according to Young Radiator.

The action was commenced in the Circuit Court for Milwaukee County, Wis., in April, 1957.

In its complaint Young stated that Kinkade had been employed by Young for a number of years as sales manager in charge of air-cooled heat exchangers for oil field and industrial applications.

During his employment by Young, Kinkade was given access to a large amount of confidential data, engineering matter, and information constituting trade secrets of Young, the firm said. The complaint asserted that Kinkade made this information available to Perfex when he went to work for Perfex.

Kinkade left Young early in 1956, and Perfex hired him about six weeks later, the Young report said, adding:

"Shortly thereafter Perfex announced that it was bringing out a line of air-cooled heat exchangers for industrial and oil field applications, to be handled through a newly-formed division of which Kinkade had been made manager."

According to F. M. Young, president of Young Radiator, the Perfex announcement indicated that its new line would be directly competitive with the equipment that had been sold under Kinkade's jurisdiction when he was with Young, and the suspicions of Young were

aroused when the first released photograph of one of the new Perfex units "appeared to be a 'Chinese copy' of a Young device."

"After the suit was begun," the Young report said, "Kinkade was adversely examined for several days, during which it was learned that when he left Young's employ he took with him several hundred sheets of Young design and laboratory data, price sheets, and prints of drawings that were perforated to show them to be not only the property of Young Radi-

tor Co., but confidential."

The litigation was settled during conciliation proceedings before Judge Otto Breidenbach in Milwaukee.

"As a part of the settlement," it was reported, "Perfex submitted to a consent judgment which required it to return to Young all copies in its possession of the Young data and information that Kinkade took from Young."

The injunction order also required Kinkade and Perfex to "deliver to [Young], each and every copy in his, its, or their

possession of any data sheet, drawing, print, or other paper or document originating with [Young] and in the possession of Hiram J. Kinkade at the time he terminated his employment status with [Young]."

The injunction "specifically designates by number the Perfex data sheets which were allegedly copied in whole or in part from Young data and information," according to Young.

"Under settlement Perfex also paid damages to Young in an amount which Mr. Young declined to reveal, but which he described as 'very substantial, especially considering that it represents a compromise settlement.'"

NFPA Standards Recognize New Duct Materials

BOSTON — Recognition of new duct materials is one of the important changes in the new standard on non-residential air conditioning and ventilating systems just issued by the National Fire Protection Association.

The standard, adopted at the association's recently annual meeting in Chicago, accepts duct materials other than metal, including flexible ducts and vibration isolation connectors. It also contains provisions applicable to the installation of ducts for high velocity systems.

The changes were prepared and recommended by the NFPA Committee on Air Conditioning, chairmanned by F. H. Faust of Bloomfield, N. J.

Copies of the standard, Air Conditioning and Ventilating Systems of Other than Residence Type (NFPA No. 90A, 24 pages, 50 cents) may be obtained from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Coleman Elects Fryar To Vice Presidency

WICHITA, Kan. — Harold J. Fryar, director of manufacturing and a member of the board of directors of the Coleman Co., Inc., has been elected vice president of manufacturing and engineering, it was announced by Sheldon Coleman, president.

Fryar first joined the company in 1928. He served as a cost accountant and purchasing agent before becoming general purchasing agent in 1940.

He resigned in 1948 to become general manager of Weather-master Corp. He has also served as manager of procurement of Beech Aircraft Corp. Fryar rejoined Coleman in 1956 as director of purchasing.



How to cut costs with the RIGHT motor

Don't be baffled by power factors, torques, efficiencies, and starting, accelerating and thermal characteristics, or housing, horsepower and speed control. Let Century Electric help you balance these factors. You can show your customers they'll have lower operating and maintenance costs with the right motor.

Here's how Century Electric can help you, too: 10,000 Choices—Century Electric engineers can help you specify the right motor without having to rely on a few types to do all jobs. Century Electric makes a complete variety of integral horsepower motors. Over 10,000 types up to 400 hp.

There is one for every type of equipment. For all operating conditions, too—dusty, corrosive, explosive or moist.

Application Know-How—Every Century Electric sales engineer knows motor drive systems because he sells motors and nothing but motors. Often he can give you on-the-spot answers. If not, he can turn to an engineering staff that comes up with quick answers.

You can get the right motor for your equipment just by contacting your nearest Century Electric Sales Office or Authorized Distributor. A Century Electric sales engineer will be glad to help you.

CENTURY ELECTRIC COMPANY
St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
58-21

ASRE Plans Heavy Technical Program For New Orleans

NEW YORK CITY—For its 45th semiannual meeting, to be held at the Roosevelt hotel, New Orleans, Dec. 1-3, the American Society of Refrigerating Engineers is arranging a heavy technical program, consisting of 12 papers by leading authorities in the refrigeration and air conditioning fields, backed by three conferences and six forums.

There will also be a research exhibit featuring the outstanding and pre-commercial development projects of 12 manufacturers.

Customary council and committee meetings will be held on directly preceding days as well as upon those with scheduled program events. The New Orleans Section, as host for the occasion, has plans for a social program.

Outstanding in interest will be the vote on Dec. 1 to decide whether or not the members approve merger with the American Society of Heating & Air-Conditioning Engineers. Members of ASHAE will ballot upon the same question at a special meeting to be held on the same date in Chicago.

ASRE members voted on June 23, at the 54th annual meeting in Minneapolis, to submit the merger for final decision at the New Orleans meeting.

PHCIB Will Meet In New Orleans On Oct. 25

CHICAGO—The annual meeting of the Plumbing-Heating-Cooling Information Bureau will be held Saturday afternoon, Oct. 25, at the Jung hotel, New Orleans, according to W. A. Landers, president.

Landers pointed out that New Orleans was selected as the meeting place because a large number of manufacturers, wholesalers, and others in the industry will be there at that time for the 7th annual convention of the American Institute of Supply Associations which gets under way at the Roosevelt hotel on Oct. 26 and continues to Oct. 29.

Everyone who has an interest in the plumbing-heating-cooling industry is invited to attend the bureau's annual meeting, Landers said.

Pointing to the membership record—from 33 to almost 900 in seven months—Landers cited this "as evidence that the industry generally is appreciative of the need for a central promotional agency to vigorously pursue a program of market development."

Carl A. Otto Dies

MILWAUKEE—Carl A. Otto, 62, vice president in charge of engineering and research for Johnson Service Co., died recently at Milwaukee hospital. He had suffered a heart attack a few days earlier at his summer home on Blue Spring Lake, near Palmyra.

McQuay To Start Second Addition to Faribault Plant

MINNEAPOLIS — Construction of the new \$150,000 second addition to the Faribault plant of McQuay, Inc., which was announced last fall, will start immediately, it was announced.

The company manufactures air conditioning, heating, and refrigeration equipment, including ice makers distributed by American Automatic Ice Machine Co., a subsidiary.

At the same time, it was announced that the company is spending approximately \$100,000 to improve the manufacturing facilities at its Grenada,

Miss. plant. This will increase production of ½-in. coils by 50% and enable the company to keep pace with the growing demand in the residential air conditioning market, it was stated.

This second unit of McQuay's three year plant expansion unit at Faribault will comprise 13,600 sq. ft. of manufacturing space, B. E. James, president, said. The contract was awarded to P & W Construction Co. of Faribault, which recently completed the first unit begun last fall.

The new unit is more than

two months ahead of schedule, James said, and this was necessitated by the company's rapidly increasing sales which are running 20 to 25% ahead of the highest previous year. The unit recently completed consisted of new raw materials warehousing space and a new loading dock equipped with modern materials handling equipment.

"Our sales have expanded to a point where it was impossible to keep up with sales, and we are running a backlog greater than any time in the history of the company," James said.

"We have recently expanded our sales and advertising and this is being reflected in our volume of business. In addition, we have added a number of new products to our line and are re-designing a number of units already in the line; and this, too, has added to the need for additional manufacturing space."

Cool Newspaper

TUSCALOOSA, Ala. — The Tuscaloosa News has outgrown its present quarters and will move to a new location at Sixth St. and 20th Ave. soon after the first of the year. Publisher Buford Boone said the new building will be air conditioned.

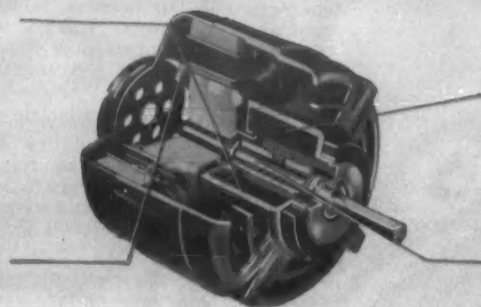
HOW YOU CAN BUILD SALES WITH GENERAL ELECTRIC'S

quieter, long-life



WITH THESE PROVEN BENEFITS OF G-E UNIT BEARING DESIGN

Bearing housing of integral cast design provides accurate alignment for smooth, quiet operation. Sturdy sleeve bearing handles normal radial and axial thrust loads in any mounting position.



Large die-cast fan integrally cast on rotor provides maximum heat dissipation for longer motor life.

Large capacity sealed oil system is designed for years of dependable service without re-oiling, permits all-angle mounting.

Forced lubrication system provides constant supply of recirculated, cooled, and filtered oil for longer life, quieter operation.

Five-Alarm at 5:08

\$Million Home of Air Temperature, Inc., Memphis Distributor, Damaged by Fire

MEMPHIS, Tenn. — Million-dollar home of Air Temperature, Inc., air conditioning and heating distributor here, was heavily damaged by fire Sept. 5.

The five-alarm fire was discovered at 5:08 a.m. by an unidentified taxi driver who turned in the first alarm.

Fire Chief John Klinck said first company officers on the scene reported the building en-

veloped in flames when they arrived. He said more equipment responded to the alarms than at any fire since the Bluff City warehouse burned in 1954.

According to Chief Klinck, "the fire apparently originated in the rear of the two-story building since the heaviest concentration of fire was in that area."

Investigators from the fire

marshal's office are continuing their investigation into the cause of the fire, according to the announcement.

Harvey Pierce, vice president, said none of the company's 23 fully-equipped service trucks was damaged.

"While we carried a good inventory of air conditioning and heating parts in our plant here," he added, "most of our heavier air conditioners and heating units are stored in a warehouse on Kansas St."

Pierce said company officials were digging through inventory records in an effort to determine their loss, which, he said, was insured.

RACCA Announces Convention Program --

(Concluded from Page 1)

cocktail party. Grand Ballroom.

MONDAY, OCT. 13

8 a.m.—Registration.

8:30 a.m.—Warmer Upper. Banjo Benny.

9 a.m.—General progress meeting. Grand Ballroom.

Opening of convention. National President Charles Walling.

Blueprint for the day. T. C. Alexander, chairman.

Birth of "RACCA Yearbook." Don Kissell.

9:45 a.m.—Local Association

Progress Clinic. Dean Kolivosky, presiding.

12:30 p.m.—Luncheon. Lower Main Dining Room.

1:15 p.m.—Report of trade relations program with ARI. George T. Howe.

1:25 p.m.—"Common Interests of Related Associations." John M. Rhodes, president, National Association of Plumbing Contractors.

1:45 p.m.—"There Will Be Some Changes Made." George F. Taubeneck, publisher, AIR CONDITIONING & REFRIGERATION NEWS.

3 p.m.—Annual business meeting. Hotel Theater.

Election of president and incoming directors.

6:30 p.m.—Family Ox Roast and Western Hoe Down.

TUESDAY, OCT. 14

9 a.m.—Idea Trading Posts. Post No. 1—Local association secretaries on how to improve local association benefits to members. H. B. Ely, moderator.

Post No. 2—Blueprint on how to form and operate a local association. Bill Piene, moderator.

9:50 a.m.—Registration. West entrance to ballroom.

10 a.m.—Teamwork Clinic. North Lake Room.

Associations and Mergers—Pros and Cons. Wilbur Hokom, C. L. Walling, Frank Shilling, and William Moody. Dean Kolivosky, moderator.

12:30 p.m.—Joint committee luncheon. Grand Ballroom.

1:45 p.m.—Introduction of guest speaker. John J. McCartin, United Association.

2 p.m.—"The United Association's Part in Joint Progress." Peter T. Schoemann, general president, United Association.

2:40 p.m.—Response by newly elected president of RACCA.

3:15 — Board of directors meeting. North Lake Room.

6 p.m.—Annual dinner. Grand Ballroom.

7 p.m.—Outgoing president's message.

7:30 p.m.—Incoming president's acceptance.

7:45 p.m.—Presentation of new officers and board members.

9 p.m.—Annual dance.

Philadelphia ASRE To Mark 30th Anniversary

PHILADELPHIA — Elaborate plans are being laid to celebrate the 30th anniversary of the founding of the Philadelphia Section of the American Society of Refrigerating Engineers here Oct. 3.

National officers of the ASRE, along with local civic leaders, will participate. Radio and television coverage has been arranged. George F. Taubeneck, editor and publisher of AIR CONDITIONING & REFRIGERATION NEWS, will be the speaker.

In charge of arrangements are W. H. Mullen and R. J. Van Doornevelt of Philco, Charles Logan and L. C. Bastian.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zent, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

shaded-pole motor

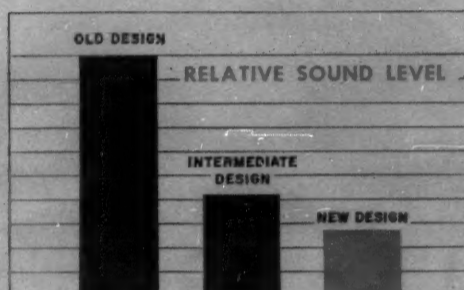
For your customers' satisfaction, General Electric offers you an important advancement in its 5-inch diameter unit bearing shaded-pole motor design. This is the new General Electric shaded-pole motor that has a 40% lower sound level, and an improved sound quality through reduction of objectionable frequency peaks.

In order to put this new motor on the "very quiet" side, General Electric's engineers made extensive use of G.E.'s industrial sound laboratory. Here the new motor design was thoroughly tested—both free running and mounted on products. As a result, General Electric engineers achieved a marked reduction in over-all motor sound level.

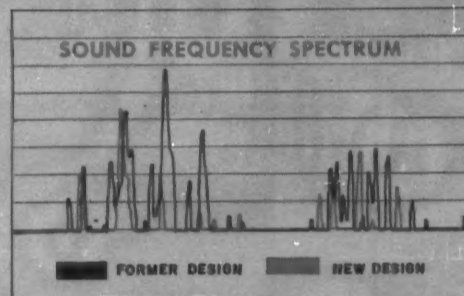
LESS NOISE MEANS MORE SALES FOR YOU. This combination assures you of a truly quiet motor for those applications where noisy operation can mean lost sales—for example, in appliances and air-moving devices for homes, hotels, hospitals, etc. The significant decrease in shaded-pole motor sound level was made possible by a new magnetic stator and rotor design. This new design allows for lower sound level without sacrifice in motor performance, and completely eliminates the use of magnetic wedges.

LONGER MOTOR LIFE RESULTS FROM PROVEN ALL-ANGLE BEARING DESIGN. The extra-large capacity sealed-in oil system as shown in the cut-a-way illustration has become the accepted quality standard in such difficult to service applications as condenser cooling fans and unit heaters.

Like more information on the many additional features of the G-E shaded-pole motor line? Fill out and mail the coupon below, or contact your nearby General Electric Apparatus Sales Office. Section 632-14, General Electric Company, Schenectady 5, New York.



BAR GRAPH shows that new shaded-pole motor has a 40% lower sound level than previous design, over 74% lower than old-style design, to provide quieter operation where noisy operation means lost sales.



ACTUAL OSCILLOSCOPE READINGS show how the new shaded-pole motor design reduces objectionable sound pitch peaks. The new design improves sound quality by making noise level less noticeable.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

FOR A COPY OF THE FREE BULLETIN, GEA-6134, covering ratings 1½ watts through ½ horsepower, mail this coupon to Section B632-14, General Electric Company, Schenectady 5, New York.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

Mueller Climatrol Detroit Council--

(Concluded from Page 1)

guarantee of the dealer council. It was pointed out that this guarantee will provide that in addition to the manufacturer's guarantee the installation will be properly sized and installed.

Should any member fail to honor this obligation and not make necessary corrections within a year he will sacrifice his rights in the council and the council will assume responsibility and perform the necessary service at no charge.

Segal explained that while the council operated similarly to the newly-organized Better Heating & Cooling Bureau (see adjoining story), there was a significant difference.

"In our council," he said, "each contractor contributes to a guarantee fund, so much for each installation he makes. He

also contributes on the basis of the number of Mueller Climatrol units he buys to a separate promotion fund.

"The money in the guarantee fund will be used by the council to back the guarantee. If a customer, after first appealing to the contractor for adjustment, then appeals to the council, the council will check his claim. If it is found to be justified, the council will make the adjustment, paying for it out of the guarantee fund. We intend to have a guarantee that has teeth in it," Segal asserted.

He noted that the council's weekly advertisements will be paid for out of the promotion fund. This advertisement carries no individual dealer names. Dealers, however, can tie in with the advertisement.

Fifteen dealers bordered the

first advertisement with small identifying advertisements giving their name, address, and telephone number along with the council shield.

Segal pointed out that the guarantee applies only to new complete warm air installations and covers a period of 12 months from installation date.

For replacement furnaces, only that portion of the installation added or changed by the dealer is guaranteed, also for 12 months after installation.

The guarantee is valid only when signed by a qualified dealer member in good standing of the council and countersigned by the secretary of the council, it was pointed out.

Arthur F. Bowers Dies

MILWAUKEE — Arthur F. Bowers, 79, president of Industrial Heating & Engineering Co., died recently at his home.

Air Conditioning Sales Roundup--

(Concluded from Page 1)

more than 20% over last year. The Knoxville Utilities Board reports that 32 dealers in its territory sold 1,068 air conditioners with a total dollar value of \$194,127.

Here air conditioners outsold the next two best-selling major appliances (automatic washers and ranges) combined. Last year, 40 dealers sold 874 air conditioners during July.

In Bridgeport, the United Illuminating Co. reported sales of 402 room air conditioners during the month as compared with 261 last year. This was very close to 60% of the 681 units sold during the entire first seven months of the year. Sales for the seven months were more than 25% below last year.

In the southwestern Pennsylvania area served by the

West Penn Power Co., dehumidifier sales galloped up to 178 units in July as compared with 93 last year. At the same time air conditioner sales slipped slightly from 603 units to 596 units for the month.

For the first seven months here, dehumidifiers were almost exactly equal to last year's sales mark while air conditioner sales were down substantially.

In the St. Louis area served by the Union Electric Co., appliance distributors shipped 1,028 dehumidifiers to dealers there, a 367% gain over the 220 units dealers accepted last year.

July dealer orders accounted for slightly more than half their orders for the year, which at the end of seven months totaled 2,017 dehumidifiers. This was 107% better than last year.

Air conditioner shipments in the St. Louis area were off 41% from last year, dropping to 1,290 units from 2,180 in July, 1957. Shipments for the first seven months, however, were still 7% greater than last year—16,049 units as compared with 15,031.

In this area, July shipments of 1-hp. and larger units outnumbered the smaller sizes by nearly three to one. For the first seven months, the ratio was better than two to one.

The Electric Power Board of Chattanooga reported a drop in air conditioner sales from the record established in July, 1957. Still, 2,033 units including 14 central units, were sold this July as compared with 2,974 last year.

Heat pump sales in Chattanooga dropped from 45 to 9 and commercial air conditioning units from 95 to 27.

Air conditioners got a chilly reception in southeastern Kansas, too, according to the Kansas Gas and Electric Co. July sales of central air conditioners numbered only 65 units as compared with 155 last year while room air conditioners sold totaled 990 as compared with 3,330.

For the first seven months, sales of dealers in this area were down 34% on central units and 10% on room units.

In the Inland Empire of eastern Washington and Idaho dealers sold 296 room air conditioners and 66 central units. For the first seven months they sold 772 room air conditioners and 152 central units. No comparisons were made with last year by the Washington Water Power Co.

Florida Room Cooler Sales Rise 15%

MIAMI, Fla.—June sales of room air conditioners to retail dealers increased 15% over the same month last year in the territory served by the Florida Power & Light Co., the utility reported recently.

Dealers bought 9,217 units that month compared with 8,030 in the same month last year, the utility indicated.

Sales to dealers for the first six months were 4% higher than last year, totaling 27,925 units as compared with 26,765 in 1957.



NEW SUNISO 3G REFRIGERATION OIL CUTS SERVICE CALLS ON "22-TYPE" UNITS

New dual-inhibited Suniso® 3G is specially formulated to prevent operating troubles in modern "22-Type" units operating at evaporator temperatures down to -40 F and with outlet temperatures up to 300 F.

Look at these features that reduce complaints and service calls:

NON-WAXING DOWN TO -85 F. No more waxing in expansion valves. No more plugged lines due to oil.

STABILITY UP TO 340 F. Protects against copper plating for 500 hours and more in accelerated tests (compared with 96 hours' protection by conventional oils). Designed to increase oil-refrigerant stability.

Servicemen can get new Suniso 3G from any jobber handling products distributed by Virginia Smelting Company.

Manufacturers can call their local Sun man or write

Industrial Products Department

SUN OIL COMPANY, Phila. 3, Pa.



In Canada: Sun Oil Company Limited, Toronto and Montreal

Suniso 3G is available in two grades . . . improved regular and new dual inhibited.

Cutting Cooling Load 25% by Insulating Wins Clothing Plant Air Conditioning Contract

**Tinted Glass Blocks,
Insulation of Attic
Make the Difference**

ALTOONA, Pa.—Chopping an estimated 25% off the cooling load through the use of insulation helped land a factory air conditioning job for Coleman-Rodland, Inc., air conditioning and commercial refrigeration contractor here.

The factory was the three-story plant of the Saf-T-Bak Inc., which claims to be the world's largest exclusive manufacturer of hunting clothing.

With the installation of 35 tons of Airtemp equipment, the renovated structure became the first completely air conditioned plant in this area, according to Merle J. Rodland.

"We were able to cut nearly 10 tons off our load by insulating the attic space with 4 in. of glass wool," Rodland said. "This was instrumental in selling the job as apparently none of our competition thought of it."

Another factor in reducing cooling costs was the installation of Pittsburgh Corning "Suntrol" green tinted glass blocks, which provided insulating value in the walls, cutting down heat gain and sun glare.

The building is a three-story brick and masonry structure measuring about 110 by 60 ft.

The ground floor is devoted to office and packing and shipping space. The office is cooled by a model 1205 5-ton Airtemp condensing unit and a model 1468-1488 combination coil and blower unit.

The second floor is used as a cutting room where 10 to 15 people work.

The third floor contains all the sewing machines tended by 65 operators. Second and third floors and remainder of the first floor are air conditioned by a 30-ton packaged air conditioner with evaporative condenser mounted on the second floor.

"At the time we installed our unit, the glass contractor had the windows out on the second



COMPLETE AIR CONDITIONING was installed as part of renovation of three-story, 28-year-old plant of Saf-T-Bak, Inc., manufacturer of hunting clothes in Altoona, Pa. Manufacturer anticipates cooling cost savings through substitute of green-tinted glass blocks by Pittsburgh Corning Corp. for sash-type windows throughout building.



PORTRAIT OF A PREFERRED SOURCE FOR THIN-WALL COPPER TUBING

In this modern, automated plant . . . specifically designed for fabricating thin-wall copper tube . . . Viking men and machines are at work producing the finest tube for America's foremost manufacturers of refrigeration and air conditioning units and coils.

Utilizing the latest production engineering and quality control techniques, combined with the highest grade materials, Viking copper tube is unsurpassed for accurate tolerances, exact tempers and perfect uniformity.

In designing this specialized fabricating facility, Viking has pioneered many of the industry's newest automatic production and testing methods . . . and is constantly improving and perfecting every step in the manufacture of Viking copper tube in a continuing effort to create copper tube that will do the job better, faster and at the lowest cost.

VIKING

COPPER TUBE CO.

CLEVELAND 16, OHIO

PRECISION DRAWN SEAMLESS COPPER TUBE



Mounts Minerallac hangers No. 9 to No. 6 on I-Beams without necessity of drilling holes. Have 14-20 tapped holes. Fits beam flanges up to 1/4" thick. Low cost. Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

Looking for
a Business to Buy . . . ?
Check the
Business Opportunities
Section
in the classified
advertising columns.



How Builder Can Merchandise Heating

Demonstrate Functions of Thermostat, Humidifier, Filters, Diffusers, and Vibration Eliminators In Providing Comfort

CHICAGO — "Successful selling does not necessarily require having something different, rather it requires selling everything you have.

"If your competitor falls short on this, you have the jump on him by merely selling the commonplace," H. T. Gilkey, technical secretary for research in the National Warm Air Heating & Air Conditioning Association, told a builders meeting.

Then he proceeded to give them a short course in how to sell heating in a new home and warned them of the dangers to them in price-chiseling.

Comfortable humidity levels and temperatures are all taken care of in a good winter air conditioning system, he said, and the builder can merchandise this comfort if he will.

Explain Thermostat's Comfort Function

Here's how it can be done, Gilkey told the builders:

After taking your prospect on the Cook's tour, you can say to him, "Now here is the thermostat for our perimeter comfort system. A great deal of research has been conducted on the subject of comfort, and we know that if you are average in your comfort requirements, you will like a temperature of about 75°.

"Furthermore, we know that you like to have this temperature not only here by the thermostat, but throughout this entire room and every other room of the house.

"Even if you don't like this particular temperature, this little thermostat here on the wall will control the temperature to whatever value you want in this room and every other room of the house. This is a real comfort system."

Then you take him into the basement or, perhaps, it's the utility room or wherever else he can see something of the heating system, including the furnace. You get a rapturous expression on your face as you say,

Furnace Described As Heart of System

"Now here is the heart of our perimeter comfort system. It is the best on the market. It will operate quietly, it will operate economically, and it will operate effectively to provide you with the comfort you want in your home."

Then you open the doors to the blower compartment and you say to the prospect, "Here is the blower on this furnace. It moves the air gently yet effectively, for we know that you don't like the air to be stagnant and stale. If it is, you are uncomfortable and this is a perimeter comfort system."

And then you look up at the filters and say, "Here are the filters which clean the air. You know, no heating system makes dirt. Dirt comes about from normal living activities.

"Lint and dust come up from the rugs, and the children and the neighbors track in dirt from

outside. Soot and smoke from the industrial areas of town sneak in around the windows or when the doors are open.

"If this dirt and dust aren't removed in some way, they settle on the furniture or on your curtains, and increase your house work."

If the furnace has disposable filters, you say to the prospect, "Change these filters often enough, and they will do a real job of keeping this house clean for you."

If you have had the foresight and merchandising know-how to equip the system with another type of air cleaning device, you point out the advantages of it.

Perhaps you have used a cleanable filter instead of a disposable one, or perhaps you have used an electronic air cleaner which will even remove cigarette smoke from the air. Merchandise these features.

Then you look up at the duct system. You point out that this is a beautiful piece of workmanship, that it is neatly installed, that it is carefully designed, and that it is what delivers the conditioned air to the living areas of the house.

You point out that vibration isolators have been used between the ducts and the furnace. You point out that these are made of flameproof fabric.

You may point out that acoustic lining has been placed inside the duct to prevent the transmission of sound.

You state that these same comfort studies showed that no one can be comfortable when he is aware of his surroundings, and that you have taken steps to sound condition this system, for any mechanical equipment makes some noise.

Point Out Benefits Of Humidifier

You mention the need for humidity. You point out that this furnace has a humidifier. It adds controlled amounts of moisture to the air so that the homeowner will be comfortable even in the coldest, driest weather.

Here again, you may wish to install a special type of humidifier which may be capable of adding so much moisture that it must be controlled by a de-

vice similar in concept to a thermostat. If you have done this, or if you offer it as an option, you can merchandise it.

You take the prospects upstairs, and you point to the perimeter diffusers. You describe the fan shaped pattern of air which rises from the diffusers, blanketing the outside walls and windows, meeting and counteracting the down drafts off these cold surfaces, and eliminating draftiness on the floor.

You point out that not only can even temperatures be maintained within all rooms of the house, but that this can be done even to the exposed corners of the rooms.

You tell him that the air immediately above the floor will be warm and comfortable, and that the air at head level or even at ceiling level will not be stifling hot.

And to top it off, if you've

This is a Landmark

New! LANDMARK by LENNOX

... MODULAR "BLOCK" SYSTEM FOR 100% TAILORED INSTALLATIONS

"Spectacular" is the word for this new Lennox development. It's spectacular in quietness... in installation versatility... in operating efficiency! Blower, heating section and cooling coil are separate packages—yet fit together as a compact unit to deliver the exactly right comfort. No guesswork—no "make-do."

It's as simple as ABC. Just choose the blower with the proper Cfm capacities—and add whatever heating and/or cooling units that best suit the need (as well as your customer's fuel preference and budget).



DOZENS OF COMBINATIONS...
HEATING AND/OR COOLING



UP-FLO HEATING



BASEMENT
MODEL
HEATING



UP-FLO
ALL-SEASON



UP-FLO COOLING

LENNOX Industries Inc.

got the right heating contractor, you can point out to the prospect that this system is guaranteed to do all of these things. You show him the written guarantee.

That is merchandising comfort.

Heating Contractor Ready To Cooperate

And, I think that if you go all the way in merchandising comfort, you will find a heating contractor who is not only willing but able to go with you, and he will help you merchandise it.

Remember, it is he who makes or breaks the system. It is he that produces either comfort or discomfort for your customer. So play him up, too.

Make sure that your prospect knows that this is a perimeter comfort system designed, installed, and adjusted by the best dog-gone heating contrac-

tor in the business.

Now, you say, "Can such a thing be guaranteed." Yes, it can. In fact, I have with me a copy of a very workable agreement form which contains just such a guarantee.

We (NWAHACA) hope, in the near future, to have a complete program on the road which will not only provide for such a guarantee but which will give the selling and promotional aids which are necessary in such a program.

In the meantime, however, you and your heating contractor can take advantage of this. Remember though—this is a contract, an agreement between you and your customer. If you try to turn it into a gimmick, it will backfire.

The effect of the quality of the heating system on your homes is just the same as the effect of using poor structural materials and sloppy workman-

ship, Gilkey warned the builders.

"The heating system," he said, "doesn't much care whether it works or not. The house doesn't care either. If you kid anybody by putting in a cheap system, you kid only yourself and the potential homeowner."

Price Cutter Will Cut Corners on Job

"When a home builder goes shopping for bids for the heating systems in his homes, he may achieve what he thinks is a very high degree of success. It is entirely possible that he will find he has saved himself about \$100 per house."

"That's a pretty neat hunk of change. But don't you think for a moment that the heating contractor is taking that out of his pocket. No, he's short-changing you all the way along the line."

"You don't know anything

about heating, and he may not know much more, but he does know how to cut down on tin work, and in ways that you will never notice."

"While he may have shaved his margin, the average heating contractor is a good enough businessman that he's not going to work for you or for anyone else at a loss. He will cut the system, and you won't know it until the purchaser of your house starts complaining."

"Now, let's get one thing straight. I don't believe for one minute that all home builders are bid shoppers or quality cutters. Nevertheless, I know that there are these people in your ranks."

"Similarly, not all heating contractors will cow-tow to the bid shopper and the quality cutter, but many of them will."

"The bid shoppers, and the quality cutters in both of our industries belong in this cate-

gory, and we shall experience quite a shake out of these people during the next year or two."

"It will be a good thing for both of our industries, for the reputation of the individual is, in the eyes of the public, the reputation of the lowest of the group with which he is identified."

Builder Found Price Didn't Cover Service

"Down in Texas, a couple of years ago, a builder of a project of over 1,000 homes shopped around for the right price for an air conditioning system, but it might just as well have been a heating system. Anyhow, he got his price."

"The first hot day came along, and he got the first of hundreds of calls complaining that the air conditioning units would not work. He called the manufacturer, from whom he had bought the equipment direct."

"The manufacturer said, 'Look, Bud, we gave you a price that didn't include any service.' The builder looked at his purchase agreement, and the manufacturer was absolutely right."

"I can't say that this manufacturer was in the wrong morally, for he had done what he agreed to do. We must face the cold fact, however, that moral weaknesses exist in any situation such as this."

"Moral weaknesses do not correct themselves; neither do such situations remain static—they deteriorate."

"There exists in both of our industries a state of moral dry rot, which we alone can correct. And correct it we must, lest we all decay into rotted cellulose."

Owens-Corning Kit Promotes Filters

TOLEDO — Owens-Corning Fiberglas Corp. has begun distribution of its 1958 fall filter promotional kits to its filter dealers.

The kit, most comprehensive in years, is built around reprints of three Life magazine advertisements. It contains 18 pieces including window display cards and stickers, a radio and television script, and announcements, ordering forms for newspaper ad mats and literature, a record card for customers, envelope stuffers, door and furnace stickers, utility envelopes, and filter change reminder post-cards.

General Filters Kit Pushes Humidifiers

NOVI, Mich.—A new, improved promotion kit designed to help contractors increase their humidifier sales is now available from General Filters, Inc., according to Robert Gregory, vice president.

The kit consists of two sizes of ad mats, instructions on making a mailing to a prospect list, a study of the humidifier market, and a free "get acquainted" offer on the "General 800" humidifier.

The kit may be obtained without charge by writing the company 43800 Grand River Ave., Novi, Mich.

year!

A "LANDMARK" IN AIR CONDITIONING AND HEATING... IN SALES OPPORTUNITY, TOO!

- Heating units in gas, oil, electricity and HEAT PUMPS
- Complete flexibility
- Reduces installation costs
- Quietest units on the market
- Commercial and residential
- Simplifies your inventory
- Up-flo or down-flo



SECTIONS OR "BLOCKS" STACK TOGETHER EASY AS ABC

Each section is housed in beautiful 20 gauge steel cabinet. Centering pins assure perfect alignment—give appearance of a single unit. Capacities—heating: 68,000 to 378,000 Btu input. Cooling: 2 to 10 tons.



"STORE TYPE" AIR CONDITIONING



UP-FLO HEAT PUMP WITH ELECTRIC STRIP HEATER

DEALERS! Don't be "left at the post" in the BIG race for business. Get the facts about LENNOX dealer opportunities

MAIL COUPON TODAY!

Lennox Industries Inc.
(Address nearest branch. See locations at left)

Without obligation, send me information about the dealer opportunities with the new Landmark.

Company.....

Address.....

City..... State.....

My Name.....

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N. Y.
Fort Worth, Texas • Salt Lake City, Utah • Los Angeles, Calif.
Decatur, Georgia • Des Moines, Iowa
Lennox Industries (Canada) Ltd.—Toronto, Montreal, Calgary and Vancouver

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

To "Dope," who hasn't missed a day of school or work for 41 years because of illness—but who is plagued by expensive tooth troubles several times a year—this idea sounds terrific!

Television 'Westerns' and Consulting Engineers

Ever wonder why television has deteriorated into a steady diet of "Westerns"? Top advertising agency executive explains it thusly:

"All drama is based on conflict. There must be heroes and villains. For comedy you need a fall guy. And about the only groups which don't protest against fictional portrayals of villains and saps nowadays are

Indians and dead outlaws.

"If, in a situation comedy, we show a child frustrating a dentist, a Dental Association threatens to boycott the sponsor's products. And so on and so on and so on. Individual Americans retain a healthy sense of humor. But they're awfully touchy in groups."

All this is preface to the following letter:

New York Association of Consulting Engineers
Editor:

We wish to call your attention to an article which appeared on Page One of Vol. 84, No. 12, Serial No. 1530 dated July 21, 1958. The article is entitled "Architects, Consulting Engineers, and Contractors At Work."

These derogatory statements and innuendoes, both explicit and implied, are insulting to the many competent and outstanding consultants comprising the

membership of our association. Furthermore, the publication of this article, even though it is grossly misleading, can very well have a detrimental effect upon the business of consultants and, in turn, the well being of thousands of educated and competent engineers who are in their employ.

We demand a retraction of the above mentioned article and request that you personally disavow the slurs on the honesty and competency of consulting engineers contained therein.

PETER J. REIDY,
President

Okay, Mr. Reidy, we do personally disavow any "slurs on the honesty and competency of consulting engineers" which you imagine you may have detected in this light-hearted piece.

(Said article was a humorous report on air conditioning contractors' attitudes toward their relationships with some consult-

ing engineers—based on actual interviews in New York City.)

But we wonder: by your indignation over something most other people thought funny, aren't you arousing suspicion that there *might* be a bad apple or two in your barrel?

Also we wonder: is there any association in the world composed 100% of entirely honest, utterly competent human beings?

Add Typo Errors

There was understandable consternation among some senators' wives when they lunched at the White House decently.—*Mobile Press.*

Later in Frank Costello's apartment house lobby, police found what appeared to be a flattened Estes Kefauver.—*Muncie Evening Press.*

Relatively "good" ages seem

to alterate as the child grows older with "bad" ages. Thus 2½ years of age tends to be a rather bad age. Things usually improve around 30.—*Portland (Ore.) Journal.*

Fine Prowler Caught By Sox Pitcher's Wife.—*Chicago Tribune.*

Ohioans and potatoes always should be planted on opposite sides of the garden for best growing.—*Morgan County Herald.*

Over-50 Sunshine

Like most of his colleagues in medicine and psychiatry, Dr. Oliver Spurgeon English has seen a lot of middle-aged patients who suddenly decide to enjoy life and don't know quite how to go about it.

"A man deprives himself of happiness until he is 45," says Dr. English. "Then he runs around madly trying to find a doctor with a syringe who will inject the means of happiness into him."

In practically every industry, the responsible work is being done by men and women over 50, according to Dr. Leonard Himler of the U. S. Committee for Industrial Psychiatry.

Careful surveys by this committee reveal that workers over 50 are more valuable to their employers than workers under 40 years of age.

"The real problem of the middle-aged man is not declining usefulness," says Dr. Himler. "It's the defeatist and antagonistic attitudes that they and employers have about middle age. Actually, these attitudes are myths."

The vital need of our people today is a regular period of silence and meditation. It is only through quiet meditation that we can correct our judgments, deepen our knowledge, and formulate wise plans. By means of meditation we rise above "the babel of voices" and learn to appraise our ideas and opinions at their true value.

Silence helps us to solve our most difficult problems. Silence gives us rest from inordinate ambition. In inward silence and stillness, we learn to know and to do the will of God.—GREN-VILLE KLEISER.

Times of general calamity and confusion have always been productive of the greatest minds. The purest ore is produced from the hottest furnace, and the brightest thunderbolt is elicited from the darkest storm.—CALEB C. COLTON.

"Is it possible that nothing real or important has yet been seen or known or said? Is it possible that mankind has had thousands of years in which to observe, reflect, and record, and has allowed these millenia to slip past, like a recess interval at school in which one eats one's sandwich and an apple? Yes, it is possible."—RAINER MARIA RILKE.

Each year members of the gentler sex spend about \$4 billion more on their wardrobes than the American males.—*Printer's Ink.*

SPECIFY • INSTALL

ALCO EVAPORATOR PRESSURE REGULATORS

Alco Evaporator Pressure Regulators accurately maintain evaporator pressure in either a single or multiple system, guaranteeing highest evaporator efficiency regardless of load changes.

Call your Alco Wholesaler—
Write for (Specifications) Bulletin #183-57.



- BUY SECURITY
- BUY QUALITY
- BUY ALCO

ALCO VALVE CO.

637 KINGSLAND AVE. • ST. LOUIS 8, MO.

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors
Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

Whirlpool Dealers Win over 3,350 Free Vacations

ST. JOSEPH, Mich. — "Our 'PYT' (Pick Your Trip) and 'Vegas Whirlwin' dealer vacation programs have been an overwhelming success," said L. W. Howard, general manager of advertising and sales promotion for Whirlpool Corp., in announcing that nearly 1,500 dealers won "PYT" trips with another 1,050 scoring on "Whirlwin."

Due to the fact that many dealers won more than one trip, the total number of trips won will total over 3,350.

"Pick Your Trip" was a full-line RCA Whirlpool program while "Vegas Whirlwin" was a program involving air conditioners and dehumidifiers only.

Howard pointed out that the January to July programs resulted in Whirlpool's biggest June in history as dealers stepped up efforts in the final month to earn the best trips possible.

Third Better Living Congress Set for Washington Oct. 7-9

WASHINGTON, D. C. — For the third consecutive year, homemakers from all sections of the country will convene here (Oct. 7-9) in "Congressional" sessions to discuss what women like and dislike about today's houses and home products—and to say what housewives want, need, and will buy for their homes in the near future.

The women, from 48 states and Alaska, are delegates to the 1958 "Congress on Better Living," sponsored for the second year by *McCall's* magazine.

Admiral Includes Philadelphia In Metropolitan Div.

CHICAGO—The recent consolidation of Admiral Corp.'s New York and New Jersey branches, now known as the Metropolitan Div., has proven so successful that the Philadelphia distributorship has been incorporated into the Metropolitan Div., which will now serve eastern Pennsylvania, New Jersey, and the New York City area, the company announced.

Carl E. Lantz, vice president-sales of Admiral, said that by merging New York, New Jersey, and Philadelphia, it is now possible to bring a complete merchandising and pricing program for the Admiral dealers in the entire eastern metropolitan territory.

To better service dealers, there will be a wider selection of stock available and merchandise will be warehoused in both Philadelphia and Newark, it was stated. The Admiral showroom and service will be maintained in Philadelphia at its present location, 1215 W. Glenwood Ave.

Operations of the Eastern Metropolitan Div. will be under the direction of Sam Schwartzstein, headquartering at 497 New Jersey Railroad Ave., Newark, N. J.

Utility Ad Advises Public How To Select an Air Conditioner

MILWAUKEE—A check list of questions and answers on how to select an air conditioner was published in a newspaper advertisement by the Wisconsin Electric Power Co. here in July.

The checklist formed part of a promotion on the utility's "wire on time" plan. It pointed out that purchasers of air conditioning units might possibly need additional wiring. The utility, it said, stood ready to supply such wiring to homeowners on the instalment plan, with payments added to the electric bill.

The advertisement started off by advising the prospective air conditioning purchaser that "your best bet is to have a dealer survey your home and help you decide on the size you should get." It itemized the

factors that should be taken into account in determining unit size.

The advertisement explained how air conditioners are rated and translated B.t.u. sizes into approximate square foot areas that they should be able to cool. It warned, however, that these figures may vary widely.

The advertisement advised prospective buyers to look for a filter that's easy to remove for cleaning, a thermostatic control, and unit with a one-year guarantee.

"It's important to see if your dealer offers and maintains local service," the advertisement also pointed out.

A thermostatic control is desirable, the utility said, because the control will keep the room at an even temperature if the

unit is properly sized. It is a real convenience and will save money on electricity.

The utility warned against "do it yourself" installation. "The money you save on installation charges is quickly lost if your conditioner fails to operate properly . . . and proper installation is vitally important," it said.

The ad asserted that installing central air conditioning in an older house is not a big job if the house is equipped with warm air heating. But, with other types of heating, it said, "you would have to install a duct system, which runs into money."

Along with the advertisement Wisconsin Electric Power distributed to air conditioning dealers a number of copies of a

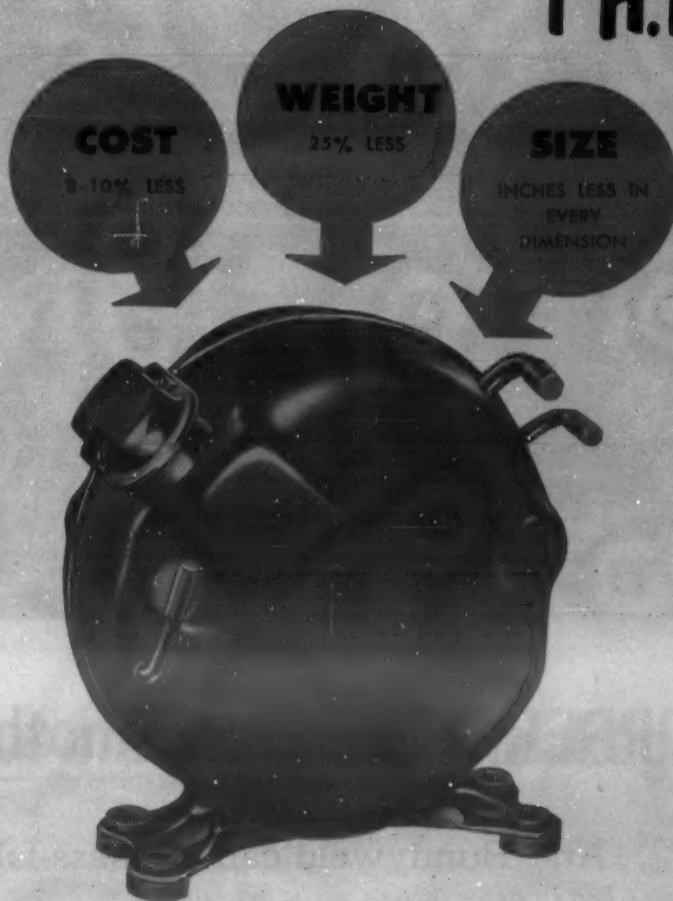
simple cooling load estimating form for determining proper size of room air conditioners and copies of 1958 room air conditioning rating data published earlier this year by the News.

Use of the rating data booklet saved one dealer a \$575 order, according to A. A. Englehard, advertising manager for the utility.

"The customer," he related, "after making the purchase, had apparently checked in other stores and found less expensive equipment available. The dealer pointed out by means of the data book that the other equipment had less cooling capacity than the equipment he had sold. In doing so, the customer agreed to keep the equipment originally sold to him."

Tecumseh engineering VISION

offers big 3-WAY savings in a new line of
1 H.P. Pancakes



By adapting the popular Pancake shell design to room cooler application, Tecumseh can now offer the industry a line of high speed, one horsepower compressors with an appreciable reduction in physical size. The basic pancake design has already been proven on millions of household refrigerators, freezers, and many specialized applications. In addition, the AR26 pancake was installed in over 60,000 portable type room coolers this past year.

This solid background of direct field experience with this design plus the obvious cost, size and weight advantages should be of interest to every manufacturer of room coolers. With the exception of heat pump applications, the new Pancake line may be used to replace Tecumseh models S8N16, S1T16, B1516, and B1613 — and still produce comparable capacities. The savings you can realize are impressive: 8 to 10% cost reduction over the Singles, even more in comparison with the Twins; 17 to 20 pounds less weight per compressor; and between 1 1/4" and 6 1/2" advantage in corresponding dimensions! Features include a new type of 4-leg mounting, glass clip-on terminals to speed hook-up, process and suction tubes located side by side for easier production line handling. Several variations are available to accommodate top mounting where necessary.

The new AU Model Pancakes now make it possible for you to design your air conditioner with even greater "slim-line" appeal, and yet hold down cost. Contact Tecumseh about the AU Pancake line — today.

TECUMSEH 1 HP PANCAKE COMPRESSORS

MODEL AU14—7 1/2 amp—115 v—7,050 BTU
MODEL AU1612—12 amp—115 v—10,000 BTU
MODEL AU1612—230 volt—10,000 BTU
MODEL AU1P12—230 volt—11,900 BTU
MODEL AU1P12—208 volt—11,900 BTU



The Leader Serving Leaders in the Air Conditioning and Refrigeration Industries

TECUMSEH PRODUCTS COMPANY

MARION, OHIO

TECUMSEH, MICHIGAN

EXPORT DEPT: P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan
CANADA: Tecumseh Products of Canada Limited, 1667 Dundas St., London, Ontario.

1. All rating figures are nominal with acceptable limits plus or minus 5%. 2. Conditions:

130°F. condensing temperature
45°F. evaporator temperature
95°F. return gas
95°F. ambient
115°F. liquid temperature entering expansion valve
All high back pressure, R-12 models based on
180 p.s.i.g. head pressure, 42 p.s.i.g. suction pressure.

Truckers Learn About Refrigeration In First of Technical Conferences

EAST LANSING, Mich. — "The ram pressure on the nose of a trailer moving at 50 m.p.h. is 1½ in. of water. Under these conditions, air leaks in the body can bring in as much as 1,000 lbs. of extra weight in not too long a time—chiefly as moisture.

"Refrigeration effect of any system is drastically reduced when this happens."

Such was one conclusion presented recently at a technical conference for supervisory and maintenance personnel of refrigerated motor carriers, private fleet operators, and processors and shippers of perishable commodities.

The 3½-day session was sponsored by Common Carriers Conference—Irrregular Route, and held at Michigan State university here.

Everything from basic refrigeration theory, through insulation materials, construction of trailers and trucks, and service of refrigeration units was covered in an effectively organized program.

Riding herd on the conference with the punctuality of a schoolmaster, Thomas R. Robertson, executive director of Common Carriers Conference, stated that this first attempt at such a meeting drew some 35 persons from throughout the United States and Canada.

On the subject of air leakage, Paul R. Achenbach, head of air conditioning and refrigeration section, National Bureau of Standards, pointed out that the air infiltration can account for 20-30% of the refrigeration load. Solar heating, which is a factor when the refrigerated body is standing still, is not so critical when the vehicle is in motion. In motion, skin temperatures of the body approach ambient.

Trailer Standard Being Prepared

Achenbach reported that the National Bureau of Standards is developing a standard rating method for trailers. Practical results of such a standard method would be to help in the selection of trailers and refrigeration systems depending on end use.

Trailer construction was discussed by Paul J. Jung, director, product research, Trailmobile, Inc., who first pointed out that consideration must be given to the kind of load to be carried.

Respiratory heat from fresh foods, for example, varies greatly with the temperature. Such foods, which actually are alive, give off more heat as the temperature rises.

Body heat of the truck, itself, must be considered, since the body will have to be lowered to operating temperature. On this subject, Jung stated that decreased trailer weights have forced abandonment of old insulation materials like cork, balsa, or loose materials.

Only glass fibers and expanded plastic foams are considered practical now, he said. Weight-wise, glass fibers are much lighter than foamed plastics. Costwise, the former are lower

in initial cost and installation, chiefly because the foams must be cut to fit irregular contours whereas the glass fiber materials can be stuffed into place.

Both materials are vermin and rot-proof.

Foams have the advantage when moisture resistance is considered; also they do not require structural support.

For practical purposes, both glass fibers and foamed plastics have the same K-factor.

"The real problem in insulation is no longer the material itself," Jung held, "but the multiplicity of joints in vapor barriers. For this reason, trailer manufacturers dream of the day they can practically and eco-

nomically build a shell, then foam the insulation in place."

Theory, Component Parts Described

The theory and component parts of mechanical refrigeration systems were described in detail by Prof. James L. Threlkeld, University of Minnesota. "Threlkeld gave us a semester's work in one day," is the way Robertson put it.

Several methods of powering mechanical refrigeration systems were described by Burrows F. Esty, chief engineer, Wisconsin Motor Corp. Most of the talk was devoted to the small gasoline engine as a power source. Units with from 5 to 30

hp. are available for trailer refrigeration, Esty stated, but care must be taken not to equate this horsepower rating with that of an electric motor.

Because of such factors as altitude, temperature, and design, the effective horsepower of a gasoline engine is about half of that of an electric motor. In other words, to do the work of a 10-hp. electric motor would require a 20-hp. gasoline engine.

Engines should be good for 3-5,000 hours of operation, he continued, at least two or three rebuilds before discarding.

Returning to horsepower considerations, Esty showed that for every 1,000-ft. rise in elevation, a 3½% loss in horsepower is experienced on a gasoline engine. For every 10° F. rise in temperature, 1% is lost.

On lubrication, Esty warned that it is unwise to change to a detergent oil after an engine has operated extensively on a

non-detergent oil. Floor discussion revealed that road experience with small engines and with tractor engines show neither beneficial nor harmful effects from using multiple, additive oils rather than simple, non-additive oils.

Subsequent issues of the NEWS will carry fuller reports on several of the papers.

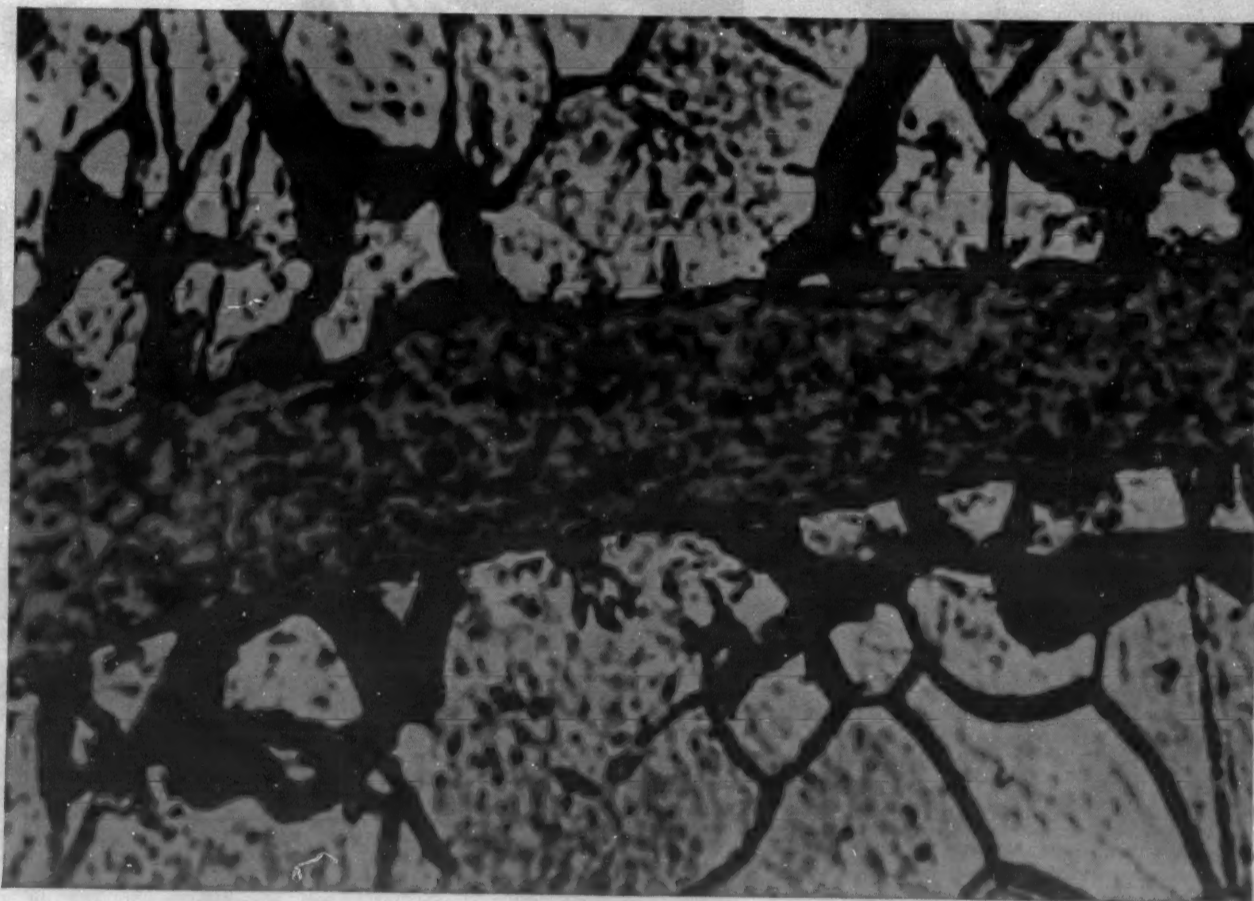
Canada's First

TORONTO, Ont., Can. — A new refrigerated tractor-trailer unit has been put into operation by Dominion Stores, Ltd. here.

Built of aluminum, and lined with a 6-in. layer of glass fiber insulation, it is said to be capable of carrying 25,000 lbs. of frozen food in a constant temperature of -10° F.

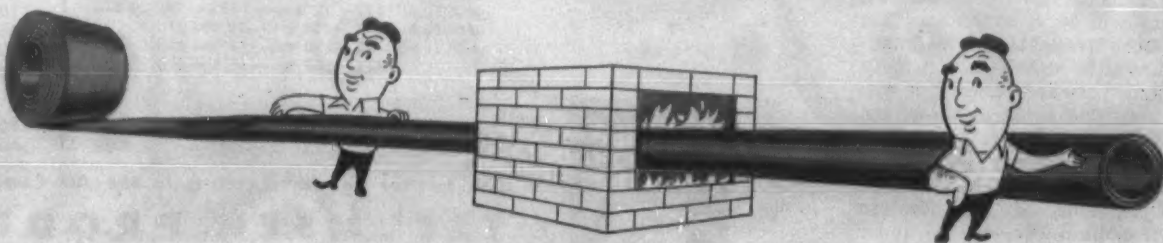
It is described as Canada's first specially designed tractor-trailer unit for retail frozen food delivery.

WHY BUNDY LEADS IN MASS-FABRICATION:



COPPER BRAZING...Another reason why

And Bundyweld can be mass-fabricated even in the most complex shapes—at a low unit-cost which results from three Bundy advantages:



Bundyweld starts as a single strip of copper-coated steel. Then it's continuously rolled twice around laterally...

into a tube of uniform thickness, and passed through a furnace where copper coating fuses with basic steel.

Result: Bundyweld Tubing—double-walled, beadless, metallurgically bonded through 360° of wall contact.

3 Sales Agent Groups Handle Overseas Distribution of Drayer-Hanson Equipment

LOS ANGELES—Three sales agent groups handle distribution of Drayer-Hanson air conditioning and refrigeration equipment beyond the continental limits of the United States. C. W. Pollock, manager of Drayer-Hanson's air conditioning and refrigeration division, announces.

Bulk of the company's foreign trade is handled by Climate Control International, Inc. here, through a distribution web covering 23 countries. Sales in the three western provinces of Canada are made through Pacific Monitor in Seattle in co-operation with Refrigerative Supply, Ltd. with sales offices in Vancouver, B. C., and Calgary and Edmonton, Alta.

Eastern provinces of Canada are covered by Drayer-Hanson's

parent company, National-U. S. Radiator Corp. through its Canadian branch at Toronto.

In the Hawaiian Islands, the Harry Z. Colvin Co. has represented the company since 1954.

Climate Control, organized in 1957, is headed by Barry Benson, who had previously represented Drayer-Hanson abroad as sales agent.

Climate Control has distributors in Austria, Cuba, Guam, India, Iraq, Italy, Kuwait, Saudi Arabia, Lebanon, Mexico, the Philippines, Spain, Uruguay, Venezuela, Brazil, Union of South Africa, Ceylon, Australia, and other countries. Other areas are covered by special arrangement.

William Keichline, Drayer-Hanson assistant sales manager,

cited among the company's "showcase" installations abroad the Hotel International in Panama City, the Polytechnic College in Singapore, a hospital outside Milan, Italy, a nurses' dormitory in Kuwait on the Persian Gulf, the Indian government buildings in New Delhi, and a cigar and cigarette factory in Manila, P. I.

Lec Bows 'Counter Server'

BOGNOR REGIS, Sussex, England—A new refrigerated counter-top display offering 6.3-cu. ft. storage capacity and self-contained was introduced recently by Lec Refrigeration, Ltd. here.

Only 14 in. high, the "Counter Server" is 6 ft. long and 27 in. deep. Internal dimensions are 54 by 23 and 10 1/8 in.

A blue "Warerite" covered area 6 1/2 in. wide runs the length of the counter-top.

Lower Prices, Design Help Seen as Key To Broadening New Zealand Market

AUCKLAND, N. Z.—"Future prospects in New Zealand for refrigeration and air conditioning appear very good, provided that prices can be lowered and that we have some design assistance," asserts G. Reynolds of Fisher & Paykel Ltd. here.

New Zealand offers special problems for air conditioning equipment, he said.

"Low comfort temperatures (68° to 70° F.) combined with high relative humidity lead to coil icing.

"Heating season design temperatures (day) of 30° to 40° F. mean that little interest is shown in air conditioners which do not heat as well as cool. Reverse cycle has greatest appeal.

"The reduction in capacity of

60-cycle hermetic systems used on our 50-cycle power is against American products."

Fisher & Paykel imports refrigeration products from Worthington Corp., Kelvinator Div., American Motors Corp., and O. A. Sutton Corp.

Principal imports have been hermetic compressors to 7 1/2 hp., open compressors to 20 hp., and room air conditioners from 1/2 to 2 hp.

A number of basic components, particularly compressors, are imported from Great Britain and Australia. Around these, the company fabricates refrigerated truck bodies, farm milk cooling plants, food storage rooms, open display cases, and air conditioners. It also fabricates domestic freezers, refrigerators, and combinations.

"The development of self-service shops requiring refrigerated displays has begun," Reynolds said, "and a growing interest in air conditioning has arisen in recent years."

He observed that American manufacturers could note that:

"Prompt replies to all our inquiries and full technical information on their products is most helpful to our engineers who may have to adapt equipment to conditions not envisaged during its design. For instance, compressors designed for air conditioning may be required for low temperature work.

"Although little trouble has been experienced in this connection, it is worth noting that our service staff must be able to cope with any plant or compressor breakdown, so that good service information, and an adequate spare parts stock are both necessary to maintain product and build its reputation."

Woolworth Opens Air Conditioned Store In San Juan

SAN JUAN, Puerto Rico—Residents of San Juan are now enjoying a new air conditioned shopping experience.

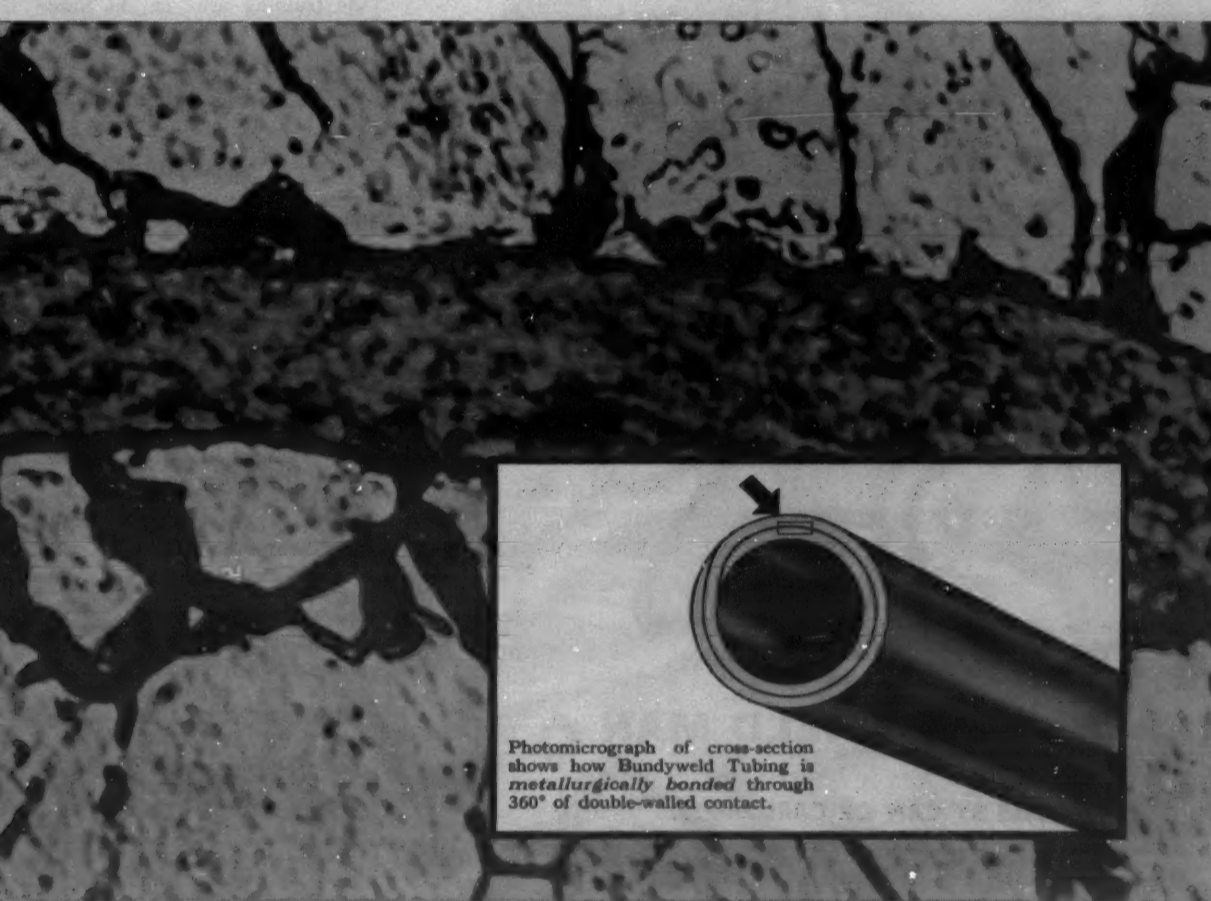
The F. W. Woolworth Co. has opened a new self-service variety store, the first of its kind in Puerto Rico, that is completely air conditioned with Worthington remote packaged air conditioners.

Two specially constructed remote units, provided with six-row cooling coils distribute air throughout the store by means of a central duct over the sales floor. The system is designed for 93° F. ambient and will provide comfort for the 35 employees, and as many as 300 shoppers.

A water tower, integrated with the building design, is located on the roof, enabling the air conditioning system to re-use the water it circulates with resultant savings in water consumption.

Another Worthington packaged unit provides temperature and humidity control for the storage of candy.

The air conditioning system was installed by Worthington's Puerto Rico distributor, Standard Refrigeration Co., Inc.



Photomicrograph of cross-section shows how Bundyweld Tubing is metallurgically bonded through 360° of double-walled contact.

Bundyweld prevents refrigerant leakage

This tubing was passed through a furnace where its copper coating fused permanently with base steel. It's just one of three reasons why Bundy leads in the modern art of mass-fabrication.

Bundyweld Tubing is copper-brazed to remain leakproof by test. Halogen detectors sensitive to leaks as small as 1/100 ounce a year can find no fault in Bundyweld. No wonder it's the standard of the industry for condensers and evaporators, compressor parts and refrigerant lines.

Free design service is yours at Bundy. Engineers famous for solving tricky tubing problems will work with you at any stage in the creation of a product; help you get parts at lowest unit cost.

Expert fabrication service is another Bundy specialty. From 80-ft. serpentine to tiny capillaries, skilled technicians will turn out parts to your specifications; deliver them on time, ready to use.

Find out how it pays to check first with Bundy on any tubing problem. Call, write or wire us today!

BUNDY TUBING COMPANY • DETROIT 14, MICHIGAN

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, ENGLAND, FRANCE, GERMANY, AND ITALY

There's no real substitute for

BUNDYWELD® TUBING

Bundyweld and Bundy specialty tubings are sold through distributors in principal cities

'Aluminum Showcase'

880 Sun Control Louvers Will Reduce Load In Air Conditioned Reynolds Metals Building

RICHMOND, Va.—A new \$11.5 million air conditioned office building—an aluminum showcase in a Virginia garden setting—will be formally opened here this month as the new home of Reynolds Metals Co.

The four-level structure, containing 1,235,000 lbs. of aluminum used in many ways for economy, efficiency, or beauty, is centrally cooled by a 1,200-ton low pressure system.

Aluminum plays a major part in the air conditioning system. Ductwork for heating and air conditioning uses 215,000 lbs. of aluminum. Convactor boxes, covers, and grilles for the perim-

eter heating system are also of aluminum.

So are the 880 giant sun control louvers which shield the entire eastern and western faces of the building, both on the outer walls and the interior facing the courtyard. By reflecting up to 95% of radiant heat, they are designed to reduce the amount of heat on the glass walls and thus lessen the air conditioning load.

'Hexcel, Ceiling Acts As Plenum Enclosure

Another aluminum feature is the "Hexcel" aluminum ceiling on the second and third levels

that acts as an air conditioning plenum enclosure, air diffuser, and light diffuser.

More than 92,000 sq. ft. of Hexcel aluminum honeycomb panels form the ceilings, claimed to be the world's largest of that type. They weigh some 32,000 lbs. They are laid into extruded aluminum special "T" sections, suspended by threaded rods from the trusses.

The new Reynolds Metals building is 312 ft. square with an open courtyard in the center. Designed to accommodate 1,000 persons, it is laid out on four levels.

Lower level contains the serv-



NEW REYNOLDS Metals Co. General Office Building, Richmond, Va. which contains 1,235,000 lbs. of aluminum, is a showcase of the light metal's many uses in modern architecture. Glass walls are shielded by the world's largest system of automatic sun louvers, made of aluminum. The building cost \$11.5 million, excluding land and land improvements.

ice areas and mechanical facilities. Reception lobby and executive offices are on the first level. Second and third levels contain 47,000 sq. ft. each of office area uninterrupted by columns but subdivided into offices by partitions in 5-ft. 2-in. modules.

The penthouse contains a health center.

The air conditioning system is

a low pressure air distribution system with a capacity of 292,400 c.f.m.

It includes electrostatic filters of 13,000 volts, cooling coils, system reheat coils, and booster coils for varying load requirements.

The main air conditioning system is supplemented by two Westinghouse packaged air conditioning units to accommodate special zoning requirements in the training area on the lower level and health area in the penthouse.

The training room unit has 15 tons' capacity and the health club unit 25 tons.

Both packaged units have their own individual duct system, and are furnished steam and chilled water from the main boiler plant.

Main System Located On Lower Level

The main air conditioning system and ventilation equipment for the building is located on the east side of the lower level and is composed of 10 separate fan systems with maximum fresh air and minimum fresh air dampers, return air dampers, face dampers, and bypass dampers.

Each has heating coils and chilled water coils. All units are controlled with Minneapolis-Honeywell Regulator Co. pneumatic and electric controls which are centralized at the Minneapolis-Honeywell Supervisory DataCenter.

Thermostats are located in the offices on the lower and first levels, and in the return ducts above the Hexcel ceiling on the second and third levels, except for certain private offices which are individually controlled.

The fan room acts as a common plenum of all 10 units and air is returned through ducts by means of pressure differential.

The two 600-ton York centrifugal compressors and condensers are also controlled at the Minneapolis-Honeywell Supervisory DataCenter. The condenser water is recooled by a redwood 2 cell Marley spray cooling tower located at the west side of the property.

Supervisory Data Center Built of Aluminum

The 32-ft. long Supervisory DataCenter is claimed to be the world's first large central control panel built of aluminum. Schematic layouts of various equipment systems are shown on the portions of panel governing those systems. Control instruments are located in the appropriate part of the layout. Cables carried in trays overhead connect the DataCenter with the equipment.

The Data Center is claimed to

Northwest Factors

George W. Wilson

H. A. McDermott

Carl R. Peterson

J. N. Marshall Company

Roy B. McCrady

Oliver J. Kestl

John J. Dorman

Bob J. Johnson

★ Home Office

Leo J. Freitas Company, Inc.

Hart Engineering & Sales Company

YOUR TRONA REFRIGERANT FIELD MAN

**HE SELLS BY CAN OR CARLOAD...
HE STANDS FOR DEPENDABLE
DISTRIBUTION THROUGH RECOGNIZED
REFRIGERATION WHOLESALERS**

This man—your Trona* refrigerant field representative—is a key man in the distribution picture across the nation. He's an important man for you to know. He represents the dependability you need... the service you want... the quality you expect in your refrigerant source. His years of business experience, technical application knowledge, and constant exposure to new trends in the industry are valuable assets for you. What's more—he's usually a one-man source of related refrigerant items.

All these foregoing qualities are reflected in the main product he carries—ISOTRON† refrigerants—distributed nationally by American Potash & Chemical Corporation, maintaining the policy of distribution through refrigeration and air conditioning wholesalers.

*Trademark and trademark of AP&CC

†Isotron is a Pennsalt trademark

TRONA For further information write
American Potash & Chemical Corporation

3000 West Sixth Street, Los Angeles 54, Calif. 99 Park Avenue, New York 16, New York

Export Office: 99 Park Avenue, New York 16, New York

replace eight maintenance men Co. of Gardena, Calif.
with a single operator. Gray on the outside

Heating is provided through two Preferred Utilities Mfg. Corp. 300-hp. unit steam generators. Boiler load is 9.5 million B.t.u. each. Design pressure is 15 p.s.i.g. each with maximum ratings of 10.350 lbs. of steam per hour at 212° F.

Operation is fully automatic with boiler feed water return system and condensate tank furnished by Preferred Utilities.

Each boiler has a horizontal rotary oil burner with automatic gas ignition and burns No. 6 fuel oil—with all necessary controls. Fuel oil is stored in two 15,000-gal. tanks underground. Estimated fuel consumption is 236,000 gals.

Fuel Oil Pre-Heated

Fuel oil is pre-heated by a steam heater with an auxiliary 42 k.w. electric oil heater for standby operations. Oil heating unit is capable of delivering 500 g.p.h. at 50 lbs. discharge pressure with only one pump operating.

Steam boilers are operating at 14 p.s.i.g. high and 10 p.s.i.g. low.

Booster coils and reheat coils in the air conditioning duct systems are supplied by a Patterson Kelley steam-hot water converter, supplying 33,100 g.p.h. and are thermostatically controlled.

Hot water heating is circulated by Worthington circulating pumps located in the boiler room under hot water converters.

In the main kitchen, five 7 by 10-ft. walk-in boxes are built in by United Cork Cos. Two are for 0° F. and three for 38° F. They are powered by two 7½-ton compressors.

How Adjustable Louvers Work

The adjustable aluminum sun louver system is claimed to be the largest in the world. It covers a total area of 21,355 ft.

The system is operated by two 7½-hp. motors and two 5-hp. motors. It is governed by a complex control system made and installed by Lemlar Mfg.

write off a large portion of the louver cost.

Ebasco Services, Inc. of New York City planned the facilities and engineered the project. George A. Fuller Co., New York City, was general contractor.

Air conditioning, plumbing, heating, and ventilating was handled by Huffman-Wolfe Southern Corp. of Charlotte, N. C.

In addition to the equipment identified above, Westinghouse Electric Corp. provided the electrostatic filters and dehumidifiers, American Air Filter Co. the air filters, Connors Engineering Co. the air diffusers, Aerofin Corp. the booster heaters, Vulcan Radiator Co. the baseboard radiation, Gustin-Bacon Mfg. Co. the insulation, Domestic Pump Mfg. Co. the condensate return, Tuttle & Bailey the double deflecting grilles, and Watts the regulating valves.



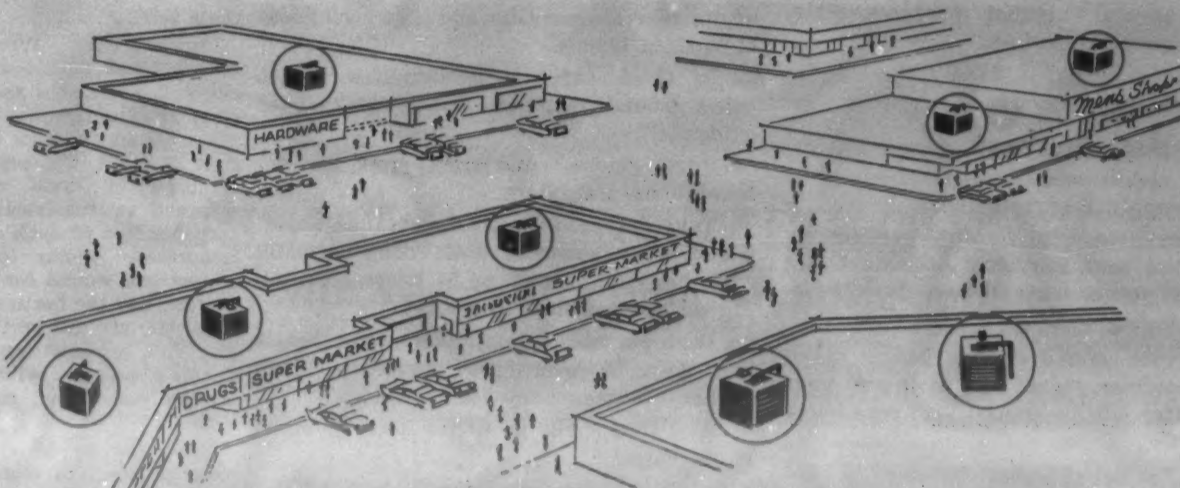
AIR in new Reynolds aluminum and glass general office building is cooled or heated as required, filtered, dehumidified and distributed throughout the building in aluminum ducts like these. The ducts are sound-proofed to maintain a low level of equipment noise and prevent cross-talking.



ALUMINUM removable covers are used on the heads of the refrigeration chillers for the air conditioning system in new Reynolds general office building.

SO HALSTEAD & MITCHELL ENGINEERS SAID

**HERE ARE THE LOWEST
COOLING TOWER MAINTENANCE COSTS
IN CHAIN STORE HISTORY**



Here's a story of cooling tower superiority which you can prove by asking the many chain store engineering departments specifying Halstead & Mitchell Cooling Towers. They'll tell you of unprecedented low costs for servicing . . . low costs resulting from built-in, long-life quality.

BEARING FAILURES ELIMINATED

The only moving part in a cooling tower, the fan, turns on completely sealed, life-lubricated bearings. Not a single case of bearing trouble has been reported in the last two years.

exclusive 20-Year GUARANTEE on wetted deck surface
Only Halstead & Mitchell pressure-cresotes all the wood in its cooling towers. Thus, only H & M can offer the famous 20-Year Guarantee on the wetted deck against failure due to rotting or attack by fungus.

PROTECTED STEEL CABINETS

Halstead & Mitchell steel protection permits use of all commercial cleaning compounds. The "*Protected-Steel*" concept is offered by no other manufacturer. Vinsynite provides a tremendous bond; Vinyl Zinc a locked-tight barrier against water; Chlorinated Rubber a thick, flexible, tough surface protection. This, plus No-Rust Stainless Steel Fans and Shafts, provides the best cooling tower protection ever devised.

It's no accident that engineering experts in the chains specify Halstead & Mitchell Cooling Towers. Why not write for catalogs and prices today?



BESSEMER BUILDING • PITTSBURGH 22, PA.

FREE!

[illegible]

the only
CAPILLARY
reference GUIDE
for the industry

The trend for economy and efficiency is engineered Capillaries. By all laws of refrigeration and physics demand a custom designed Capillary. A Sealed Unit Guide will help you order the right Capillary for the job.

Sealed Unit Parts Co., Inc.
St. • New York 40, N.Y.

Send CAPILLARY Guide and prices

Name _____ City _____

Address _____ Zone _____ State _____

2 thru 100 Tons—At Leading Refrigeration Wholesalers

They'll
Do It
Every
Time

by
Jimmy
Hatlo



Commercial Refrigeration Dealers: Don't Overlook the Dehumidifier

DESPITE the fact that Sears-Roebuck is making a "killing" on dehumidifiers, few commercial refrigeration dealers are competing with confidence in this profitable field, manufacturers report.

They don't know quite how to promote it, apparently—or else don't appreciate its potentials.

Some commercial dealers even aver that the dehumidifier lacks "positive values."

Most people, these Doubting Thomases alibi, buy a dehumidifier as a defensive measure. Example: preventing mildew. Or preserving a library, etc.

In the eyes of too many contractors and dealers, apparently, the dehumidifier doesn't promise family betterment, or advancement up the top-your-neighbor progress scale, as an air conditioner does.

(In other words, it doesn't have Pride of Possession appeal.)

What, then causes this "country cousin" of the air conditioner family suddenly to be in short supply every summer?

In some parts of the country, particularly in the East and southern Atlantic Coast areas, heat waves leave thousands of basements wringing wet.

Word gets around about a gadget called the dehumidifier. "Just plug it in and your excess water will be sopped up," consumers hear.

So the dehumidifier becomes a hot item, and Sears cashes in because nobody else has them in stock.

Many buyers of dehumidifiers are over-zealous, of course. Just as in the case of complete air conditioning, the uses and limitations of a dehumidifier should be made clear to the public.

Perhaps there is a lesson in this huggemugger for those who believe in the future of the dehumidifier.

It could grow up to be a real money-making item for air conditioning contractors,

commercial refrigeration outlets, and specialty dealers (the BIGGEST plumbing and heating and major appliance dealers sell and service in non-metropolitan areas).

The catch: it must be SOLD conscientiously and imaginatively.

Of this we are sure: here is a product that can be sold with simple "one foot in the door" specialty selling methods, meaning: outside-the-store calls and home demonstrations.

Air conditioning specialists should be naturals for this job; likewise, the 3,500 or so genuine specialty home equipment dealers remaining in this country.

It is true that quick weather changes produce excessive condensation in basements, recreation rooms, and split-level floors of modern homes.

In those cases a dehumidifier makes below-ground quarters livable instead of skidable.

Furthermore, commercial uses for dehumidifiers are galore.

Take hotels. When carpets are shampooed, or walls painted, hotel rooms normally can't be rented for 36 or 54 hours (depending on geographical location).

With portable dehumidifiers, these hotels can provide overnight transition from vacancy to occupancy for transients.

And that spells profit for hotel or motel management.

Most important sales outlets for manufacturers of dehumidifiers should be the air conditioning specialists, commercial refrigeration dealers, and the genuine top-ranking home equipment dealers.

If THEY are encouraged to promote this truly adaptable specialty product, they will ZO-OO-OM it upward.

But they'll have to be sold on the idea that they can make money on dehumidifiers.

Mr. Manufacturer: it's up to you to sell them on its profit possibilities!

It is one of the most serious dangers of any highly organized society such as ours that it encourages, especially in times of stress, the development of the organization man, the social and intellectual conformist, the well-balanced and well-adjusted individual, and tends to discourage, if not suppress, the unique, the different, the independent, the pioneer.—CLARENCE FAUST, pres., *Fund for the Advancement of Education*.

Air Conditioning & Refrigeration News, September 15, 1958

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark
reg. U.S. Pat.
Office:
Est. 1926

AIR CONDITIONING
& REFRIGERATION **NEWS**

Copyright
1958,
Business News
Publishing Co.

F. M. COCKRELL, Founder

'The Conscience of the Industry'

Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: \$6.00 per year; 2 years, \$9.00; 3 years, \$12.00. All other countries: \$10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

EDITOR & PUBLISHER,
George F. Taubeneck

EDITORIAL DIRECTOR,
Phil B. Redeker

ASSOCIATE EDITOR,
C. Dale Mericle

ASSISTANT EDITORS:
John Sweet
Hugh Mahar
George Hanning

TECHNICAL EDITOR, Frank Versagi

STATISTICAL EDITOR, John MacLean

GEN. MGR., Warren Jones

GEN. PROD. MGR., Walter Schuler

ADV. PROD. MGR., A. M. Barrow

SUBSCRIPTION MGR., Rosalie Ashley

READER'S SERVICE MGR.,
Vincine Mogyorodi

PRESIDENT, Edward L. Henderson

ADV. MGR., Robert M. Price

WESTERN ADV. MGR.,
Allen Schildhammer

ASST. ADV. MGR., Joe Sullivan

ADVERTISING REPRESENTATIVES:
Rex Smith
Frank Taylor

ADVERTISING OFFICES:

New York, 621 Fifth Ave.
Murray Hill 2-1928-9
Robert M. Price
Frank Taylor
Chicago, 134 S. LaSalle St.
Franklin 2-8093
Allen Schildhammer
Rex Smith
Detroit, 450 W. Fort St.
Woodward 2-0924
Joe Sullivan
Los Angeles, 4710 Crenshaw Blvd.
AKminster 2-9501
Justin Hannon

Member, Audit Bureau of Circulations. Member, Associated Business Publications.

VOLUME 85, No. 3, SERIAL No. 1,538, SEPTEMBER 15, 1958



CARRIER 'HAS HAD 50-CYCLE UNITS FOR 20 YEARS'

Carrier Corp.
New York 17, N. Y.

Editor:

The Aug. 4 issue refers to air conditioning equipment for 50 cycle territories and to charges that American manufacturers do not give sufficient importance to the requirements of these territories.

Carrier Corp. through its International Div. has, to my personal knowledge and experience, supplied genuine 50 cycle room air conditioners for more than 20 years. The compressors of these 50 cycle units are different in construction than those used on 60 cycle units, the compressor motor and fan motors are wound for 50 cycle current, and the fan speeds, controls, etc. are different so as to give full refrigerating and air handling capacity with low operating costs when run on 50 cycle.

Some Carrier 50 cycle sizes have as much or more cooling

capacity when operating on 50 cycle than corresponding 60 cycle sizes operating on 60 cycle current, and their model numbers and component part numbers are also different. This applies also to many of the other Carrier products specially produced for 50 cycle territories—a fact which can be verified by Carrier distributors in any 50 cycle territory.

Some manufacturers have stated that no company here supplies equipment specifically intended for 50 cycle operation and many people in these markets believe such statements which are not in accordance with the facts as attested to by the highly successful use of Carrier products for many years under local conditions of temperature and electric supply in these export markets.

FRANK J. RIDER,
Sales Manager,
Packaged Equip.

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only \$6.00 per year, 68 issues (U.S. and Canada). Foreign: \$10 per year.

AIR CONDITIONING & REFRIGERATION NEWS 9-15-58
450 W. Fort St., Detroit 26, Mich.

Send the NEWS every week for: ☐ One Year \$6. ☐ Three Years \$12.
☐ Payment Enclosed ☐ Bill Me ☐ Bill Company

Name.....

Company.....

Street.....

City..... Zone..... State.....

IMPORTANT: Company's Type of Business.....

Victory Field Press Box Gets Heat Pump

INDIANAPOLIS—Ray Johnson, general manager of the Indianapolis baseball "Indians," a community owned triple "A" club, announced the installation of a Peerless "Clima-Pump" heating-cooling system for the Indians' Victory Field press box that is said to be a "first" for both the minor and major leagues.

The 5-hp. Clima-Pump heat pump was installed to provide season weather control for field, press, radio, and TV reporters who "work" the Indians' home games.

The installation incorporates a completely insulated, weather-proofed "on the roof" duct system, to deliver cooled or heated air to each individual enclosure, with a self-contained, air-source, all-electric 3,000-lb. Clima-Pump unit that was hoisted to the stadium top by "sky hook."

Johnson was first approached with the installation suggestion by Oz Mutz, Peerless Corp. vice president. Arrangements were made to complete the job on a no profit basis as a public relations gesture by Peerless to the citizens' stockholder group.

Arizona To Replace Variety of Cooling Systems In Capitol

PHOENIX, Ariz. — Future Arizona legislatures are going to have a more comfortable atmosphere in which to work.

The lawmakers have approved purchase of what is termed the largest air conditioning system in the Salt River Valley. It will serve the Capitol built in 1900 and its two additions plus the Senate and House of Representatives buildings now under construction.

A contract for nearly a quarter million dollars for equipment has been awarded to Carrier Corp., according to James R. Bell, branch manager. It was made by the Frank Harmonson Co., local mechanical contractor, who will install the major system for Kitchell-Phillips Contractors, Inc., general contractor.

To match the cooling capacity of two centrifugal-type refrigerating machines operating automatically according to demand, some 2,000,000 lbs. of ice would have to be piled daily on the mall, Bell said. From their basement location in the Senate, they will provide chilled water for underground distribution to the other structures.

"Every conceivable type of air conditioning" has been used in the Capitol and its wings, which were built in 1918 and 1939. Bell said the variety of units will be replaced by a single, central system designed especially for each of the governmental buildings, reducing over-all maintenance.

Architect for the new 3-story Senate and House of Representatives buildings placed in front and to the side of the Capitol is the Associated State Capitol Architects, a joint venture of Lescher & Mahoney of Phoenix and Place & Place of Tucson. Lowry & Sorensen is consulting mechanical engineer.



"SKY HOOK" hoists 5-hp. Clima-Pump heat pump unit to press box at Victory Field where Indianapolis baseball "Indians" play. The system is said to be a "first" for both the major and minor leagues.

Bowlers Kept Comfortable by System That Doesn't Cool Down-Alley Areas

ST. PETERSBURG, Fla. — air conditioning system required Summer and winter, bowlers at that the vast area taken up by one of the largest and newest bowling alleys in Florida will find temperatures "just right" and the alleys go unconditioned, it was reported.

This was achieved by recessing ductwork in the ceiling at the bowling line even though ing above the 195-ft. bowling line temperatures may vary 20° higher or lower depending upon the season of the year.

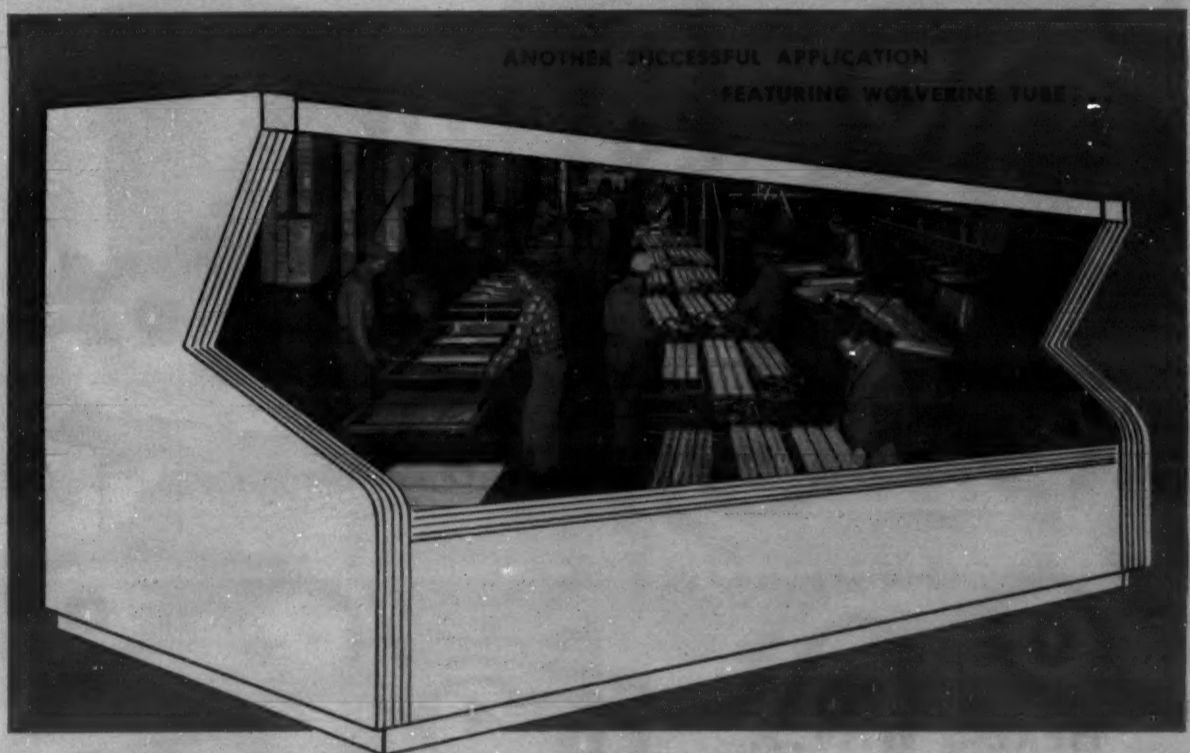
This is accomplished by partial air conditioning of a 36,746-sq. ft. building housing 32 bowling alleys, a steak house, cocktail lounge, snack bar, guest lounges, and private locker rooms.

Named the "Bowlamara," the enterprise is located in St. Petersburg. Construction costs exceeded a million dollars.

Economical operation of the

Throughout the recreation sections where the bowlers congregate, conditioned air from two 25-ton York units is carried in ductwork fabricated from "JalZinc," zinc-coated sheets made by Jones & Laughlin Steel Corp.

Ductwork for the air conditioning system was erected by the Suncoast Sheet Metal Co. of St. Petersburg.



HUSSMANN FREEZES QUALITY with Wolverine Long Length Coils

There's a sign in the plant of Hussmann Refrigerator Co., St. Louis, Missouri, that says "This business was built on quality—keep the quality up!"

Pretty good slogan! It is typical of Hussmann—the way the company operates and the way the Hussmann units perform. Typical of Hussmann, too, is the fact that one of its top suppliers is Wolverine Tube. Hussmann is internationally known for its extensive line of super market equipment for displaying and self-service selling of frozen food, meats, vegetables, ice cream and dairy

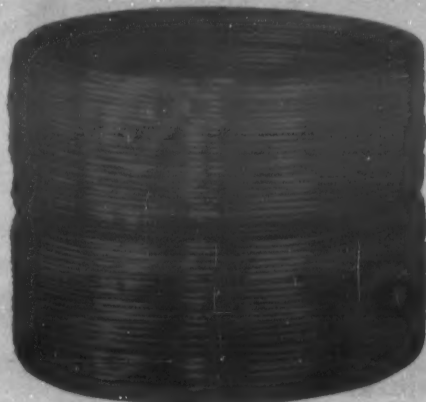
products, as well as storage refrigerators and refrigerating machines for the back room.

Wolverine copper refrigeration tube is used in the very heart of the refrigeration equipment—the evaporator units. It is picked because of the product and service dependability built into every foot of Wolverine tube.

To help Hussmann—and the other manufacturers it serves maintain the desired level of product quality Wolverine copper and aluminum refrigeration tube is rigidly quality controlled. In addition Wolverine's continuous Tubemanship program is founded on such quality building features as years of tube-making experience, constant research and sound engineering.

Wolverine supplies refrigeration tubing in long length coils so Hussmann can: (1) continuously feed automatic equipment and (2) achieve maximum inventory flexibility.

If like Hussmann, your company requires tubing in long length coils—or in short lengths—you can maintain top product quality by specifying the products of Wolverine Tube. For more complete information write for your copy of our new booklet "Wolverine Serves The Refrigeration Industry."



Long-length coils of copper and aluminum tube are available from Wolverine in both bunch and level wound form.

CALUMET & HECLA, INC.
REFRIGERATION DIVISION
EQUIPMENT DIVISION
WOLVERINE TUBE DIVISION

In Canada:

CALUMET & HECLA OF CANADA LIMITED
WOLVERINE TUBE DIVISION
CANADA VULCANIZER & EQUIPMENT CO. LTD.
REFRIGERATION TUBE DIVISION



PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALA.
SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPT., 33 E. 40TH ST. NEW YORK 16, N.Y.

WOLVERINE TUBE
DIVISION OF
CALUMET & HECLA, INC.
17246 Southfield Road
Allen Park, Michigan
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

Commercial, Industrial Air Conditioning Survey Defines Potential Market

3—PURCHASING • Most Equipment Has Been Bought, Not Sold, PATTERNS • According to Du Pont's Third Market Study

"Just as for residential room air conditioning and central residential air conditioning," state those who made the Du Pont surveys for all three market areas, "commercial and industrial air conditioning has been bought, not sold.

"The greatest amount of selling effort in any single category was in retail food and drug-stores and only 17% of those reported having been solicited without an inquiry. This finding is all the more surprising when it is considered that the commercial and industrial market is over 25 years old.

What Owners Said as to Whether They Had Been Solicited to Buy or Called In Someone

	Called In Someone (%)	Solicited by Someone Without Inquiry (%)	All Other Responses (%)
Retail	70	10	20
Other			
Commercial 72		5	23
Industrial ... 78		6	16

"Since we are still dealing in a market of relatively low saturation," the survey findings continue, "there is still a real op-

portunity for more concerted selling effort. The problem is that of selling someone something he has never had and probably doesn't understand. What better way to do this than through creative personal selling?

"If more of the stimulus for purchasing was coming from the seller, not the buyer, there should be less importance on price."

While there are some variations between the various commercial and industrial segments of the market as to who installed the air conditioning

Complete results of its survey on the Commercial and Industrial market for air conditioning have recently been released by the Freon Products Div. of Du Pont. Because it offers much that will be useful to all who are concerned with the sale of equipment to this market, the NEWS is publishing a condensation of the complete survey in a series of articles. This is the third in the series.

Who Installed the Air Conditioning In Commercial and Industrial Establishments (Expressed in % of total of each type)

	Total Retail (%)	Total Commercial (%)	Other Industrial (%)
Air conditioning engineer or contractor...	35	23	27
Electrical appliance dealer	24	29	29
Plumbing and heating contractor.....	7	14	10
Manufacturer	6	4	4
Warm air heating equipment dealer.....	3	3	4
Sheet metal contractor	3	1	3
Other	10	12	16
Not specified	12	14	7

You can count on HIGHER PROFITS

WITH

Curtis

AIR CONDITIONERS

HERE'S WHY...

MAXIMUM DEPENDABILITY

Each CURTIS unit is backed by 104 years of engineering and manufacturing experience... one of many reasons why CURTIS air conditioning equipment operates at maximum efficiency with a minimum of maintenance.

CUSTOMER SATISFACTION

The long operational life and minimum service requirements of CURTIS air conditioning, combined with peak performance, assures satisfied customers.

PRE-SOLD PROSPECTS

National advertising beamed at virtually every prospect category helps pre-sell Curtis equipment for you. CURTIS provides sales and promotional aids to make your selling job easier.

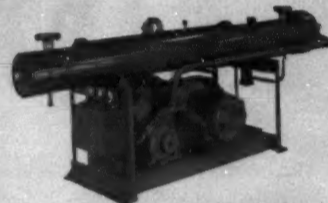
PRICED FOR PROFITS

All Curtis air conditioning equipment is competitively priced, with a very generous profit margin for you!

Evaporative Condensers and Cooling Towers up to 100 tons Air handling units to match.



Packaged Liquid Chillers—7½ to 100 tons—F-12 or F-22. With room console units to provide controlled cooling and heating without duct work.



Packaged Air Cooled Air Conditioning Units—2 through 7½ tons. Residential and commercial applications.



Packaged air conditioning units—3 through 50 tons.



Condensing units up to 100 tons—F-12 or F-22.



REMEMBER—
you can count on

Curtis

OUR 104th YEAR
MANUFACTURING COMPANY • REFRIGERATION DIVISION
1912 Kienlen Ave., St. Louis 20, Mo.

C-35

Represented in Canada by—T. M. Hall Ltd., 30 Milner St., Montreal West 28, P.Q., Canada

equipment, in all segments the air conditioning contractor or engineer and the electrical appliance dealer were shown by the survey to have made the greatest number of installations.

Importance of the appliance dealer comes as the result of the number of installations of room units in this market. The survey says that in the case of hotels and motels, many of which are done with room units, about half of the installations were made by appliance dealers.

"Since the stimulus is coming from the buyer," the survey concludes, "it would seem well for anyone installing air conditioning to identify himself with air conditioning in his advertising, telephone book listing, and other business references. It might also be well to include the type of equipment sold and installed."

The survey makers express the belief that the findings on plans for replacement could be one of the most important parts of the whole effort.

"As the industrial market becomes more saturated," it is stated, "it will be necessary to an even greater extent, to look to the replacement market for business. It is obvious that no replacement market now exists.

"What can be done about it? Corrective action might be taken in two ways. First, aggressive sales effort aimed specifically at the replacement market and pointing out the economic advantages of replacing old equipment with new, more efficient equipment.

"Second, new designs which will make it even more to the owner's economic advantage to replace his old equipment with a new, up-to-date installation."

All owners were asked if they had any plans at present to replace any of their air conditioning within the next year—this is what they said, broken down by year in which their present installation was made.

Plan To Replace (Expressed in % of total by year of installation)

	Yes (%)	No (%)
1945 and prior	4	96
1950-1951	3	97
1952	2	98
1953	1	99
1954	2	98
1955	1	99
1956	2	98
1957	2	98

Heat Pump Enters Automotive Air Conditioning

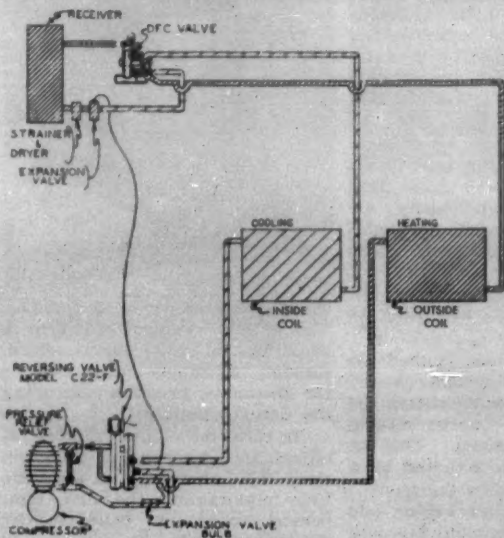


FIG. 1—Cooling cycle.

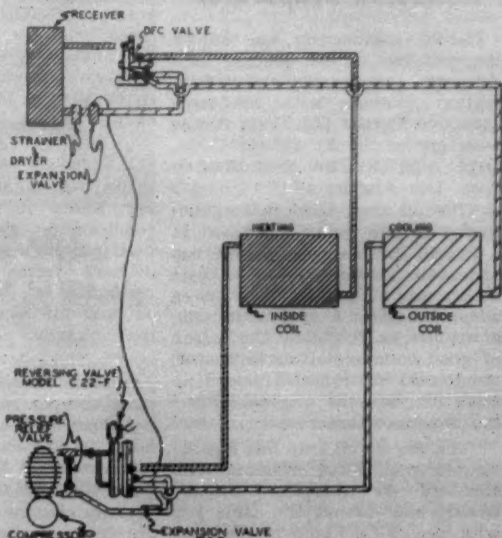


FIG. 2—Heating cycle.

By H. Banks Edwards
Chatleff Valve & Mfg. Co.,
Houston, Texas

Ample and instantaneous heat—heat within 10 seconds—are the most noticeable results of converting the normal automotive air conditioner into a heat pump.

This conversion has been successfully accomplished with the Chatleff Automobile Heat Pump Conversion Kit, the components of which have been field tested in Lincoln, Chrysler, Edsel, Chevrolet, Studebaker, and Buick.

Practical and inexpensive operation have been proved in over 140,000 miles of operation, in temperatures from -10° to 105° F.

Primary component of the automobile heat pump is the reversing valve. Conventional reversing valves were redesigned and modified for application to cars. Only seated reversing valves were considered, since unseated valves would hunt when the car operates over a rough road.

In order to avoid the use of two expansion valves with a check valve by-pass which is usual to heat pumps, Chatleff developed a Directional Flow Control Valve which enables a system to switch from heating to cooling with only one expansion valve. Figs. 1 and 2 show the relative functions of the reversing valve and directional flow valve (DFC).

Field tests indicated rather early that when the system was switched from cooling to heating cycle in an ambient above 95° F., an excessively high head pressure developed—about 350 p.s.i.g.

To prevent rupture of hoses under these conditions—also under conditions which would be found in summer when unit operates with car at a standstill—a special blow-up preventer or pressure relief device was designed. Design is such that excessive head pressure is relieved into the suction side of the system at a predetermined pressure. Relative position and function of the pressure relief valve are shown in Figs. 1 and 2.

Fig. 3 gives the typical control diagram used with the Chatleff heat pump setup.

In practice, heat available from the air in temperate and southern areas is sufficient for

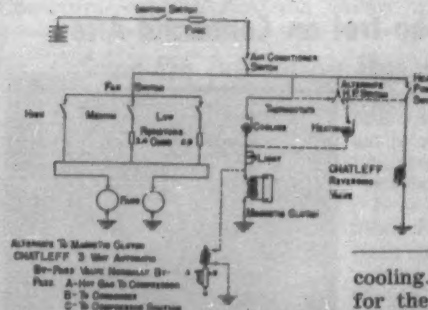


FIG. 3—Typical control diagram of automobile heat pump.

normal operation of the heat pump. Where extreme cold weather is expected, units can be equipped with a Sub-Zero Heat Pick-Up. Even under these conditions, heat is felt in the car within 10 seconds after starting the engine.

There are other advantages to an automotive heat pump. There is a decided reduction in cost to the public when compared to the separate systems now needed for heating and

cooling. Less space is required for the heat pump.

Ease of removal and relocation makes under-dash unit ideal for trucks, farm equipment, and heavy machinery.

Now in production, the Chatleff Automobile Heat Pump Conversion Kit contains:

One Chatleff 2-ton, 6 or 12-volt d.c. automatic automobile reversing valve,

One Directional Flow Control Valve,

One Pressure Relief Valve, automatic pressure relief by-pass, blow-up preventer.

FACTORY installed—or DEALER installed...



PLANNED
FOR PRECISION

THE BEST

CAR AIR CONDITIONERS are made with H & H TUBING AND PARTS

It is no accident that the best known names in car air conditioning depend on H & H Tube & Manufacturing Company for their tubing needs. Whether you use seamless copper tubing fabricated into parts, or in straight lengths, or in coils, it will pay you to learn how H & H quality is daily helping good products become even better. Sizes range from 3/32" O.D. to and including 1 1/4" O.D. with wall thicknesses from .010 through .065. All H & H refrigeration tubing is bright, clean, dehydrated and available with ends capped, plugged or crimped.



H & H

TUBE AND MANUFACTURING CO.

271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast



METALFLO



LOCKSEAM



COIL STRIP



SEAMLESS TUBING



TUBULAR PARTS

Bryant Puts Robo-trol on Command-Aires

"A new kind of comfort-magic" has been announced by Bryant Mfg. Co., Dept. AC&RN, 2020 Montcalm St., Indianapolis, in the form of its "ROBO-trol" as integrated into its "Command-Aire" series of deluxe furnaces.

With the new furnaces, "a touch of the fingertip provides the heating comfort desired," the company said, adding: "Actually, with a complete Bryant installation, a single control serves to switch the home comfort system from winter heating to summer cooling." Bryant calls this operation ROBO-trol.

The Command-Aire series of furnaces, including basement and vertical models, has been designed to provide gas heating and to make provision for the addition of air conditioning equipment when desired to make them integrated year-round comfort units. Command-Aire controls match furnace air delivery to ductwork to increase or decrease the volume of warm or cool air desired at any



time, it was stated.

Bryant's Universal Burner, which is used in the Command-Aire units, is said to work equally well on natural, manufactured, or LP gas.

Other Command-Aire features include a filter gauge which raises a sign when filters need changing; a rubber-mounted, belt-driven centrifugal blower; a "TRI-Alloy" heat exchanger, "a product of the Jet Age"; and the new and exclusive Bryant diaphragm valve and pilot, according to Bryant.

Stops Oil Seepage In Ammonia Evaporator

Recold engineering has solved the problem of oil seeping into ammonia evaporators and refrigeration systems with the new, exclusive Recold Oil Trap, it has been announced by Recold Corp., Dept. AC&RN, 7250 East Slauson Ave., Los Angeles 22.

"The oil trap, used in conjunction with the desuperheat coil of a Recold 'Dri-Fan' condenser, has undergone extensive field tests which have proven that even when placed in a system in such a manner as to follow the action of good commercial oil separator, the Recold oil trap still picked up more oil than the original filter," the announcement said.

"The Recold oil trap has demonstrated that while systems with standard oil separators require weekly shut-downs, the same job, with Recold Oil-Removing System, operates continuously with top performance from evaporators," the statement said.

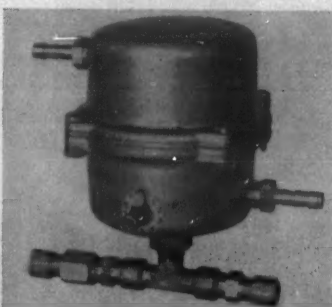
Regulator Keeps Air Volume Constant

Individual room control of air volume in office buildings, hotels, clubs, hospitals, and restaurants is provided by a new static pressure regulator announced by Powers Regulator Co., Dept. AC&RN, 3434 Oakton St., Skokie, Ill.

Called the Constant Air Volume (CAV) regulator, the unit is installed on ceiling or window mixing boxes in high-velocity air conditioning systems. It automatically maintains a constant air delivery from the mixing box, regardless of changes in the hot or cold air supply, according to the company.

"The regulator is linked to pneumatic motors which open or close damper valves admitting the hot and cold air to the mixing box," it was explained. "The hot air damper is also actuated by a room thermostat."

"Any change in the hot or cold air flow into the mixing box will cause an air volume change in the box and in the room. This volume change is instantly detected by



the CAV regulator's sensing tubes. The change is transmitted to a diaphragm in the regulator, which, through a flapper valve, varies the pneumatic pressure controlling the damper motors.

"In turn, the damper motors readjust the dampers to maintain the desired air volume, at the same time maintaining the new temperature conditions called for by the thermostat."

An adjustment on the regulator enables the mixing box to provide different air flows to meet changing conditions, according to the manufacturer.

Printed Resistor Capacitors Safer

New "printed resistor" AC capacitors are being offered by Aerovox Corp., Dept. AC&RN, New Bedford, Mass.

"Printed resistor" units automatically bleed voltage out of capacitor when the circuit is turned to "off" position, it was stated. This prevents point

burnouts in relays and provides for safer servicing by eliminating charge normally left in capacitor, the company said.

"Printed resistor" AC capacitors were designed especially for manufacturers of air conditioners. These new units are claimed to provide faster and more economical assembly and servicing operations.

AC capacitors with "printed resistors" are available from Aerovox in the following electrical values: 15,000 ohm, 2 watt, -30% on 1 1/16 in. and 1 1/8 in. diameter covers; and 20,000 ohm, 4 watt, -30% on 2 1/16 in. and 2 1/8 in. diameter covers.

Embassy Steel Bows Water-Cooled Line

A water-cooled, self-contained air conditioner, 5 through 15 tons, is now being marketed by Embassy Steel Products, Inc., Dept. AC&RN, 890 Stanley Ave., Brooklyn 8.

"Designed for commercial and industrial application, this air conditioner is distinguished by its engineered ease of operation," the announcement stated. "All controls are immediately and conveniently reached through the front access door. The expansion valve is factory set for proper superheat adjustment. No field adjustment is necessary. Compressors are spring mounted and have thermal overload for added motor protection."

Both compressors and expansion valve are covered by a five-year warranty.

"An outstanding feature of the air conditioner is the newly-designed refrigerant distributor which provides added cooling capacity under all conditions. Suction and discharge lines are equipped with vibration eliminators for quiet operation and long life."

SIL-FOS—25 individual cartons per case containing 20 sticks per carton; .050" x 1/8" x 20".

EASY-FLO 45—25 individual cartons per case, 17 pieces per carton. 1/16" diameter wire in 20" lengths.



New small packages of Easy-Flo and Sil-Fos

Low cost... Buy what you need... USE what you Buy!

Many users of silver brazing alloys can benefit from these small packages of EASY-FLO and SIL-FOS. No more on-the-job waste, exact amounts in small quantities do away with alloy "scrap" problem—"scrap" that costs you money. Now you can "carton out" your brazing alloy for each job and know how much you're using and how much you will need. Purchase by the case or carton, either way your alloy inventory is kept to the neatly packaged minimum.

Your supplier should have the new EASY-FLO and SIL-FOS packages on his counter now. Look for the familiar Handy & Harman blue and silver colors. GET WHAT YOU NEED—WHAT YOU CAN USE NOW!

DEALERS—WHOLESALE!

Stock EASY-FLO and SIL-FOS now for maximum profit. These original silver brazing alloys outsell all other brazing alloys in the U. S. combined. For details and prices see any Handy & Harman distributor (list on request) or write direct.

Your NO. 1 Source of Supply and Authority on Brazing Alloys



HANDY & HARMAN

General Offices: 82 Fulton St., New York 38, N. Y.
DISTRIBUTORS IN PRINCIPAL CITIES

OFFICES AND PLANTS
ATLANTA, GA.
BIRMINGHAM, ALA.
CHICAGO, ILL.
CLEVELAND, OHIO
DETROIT, MICH.
LOS ANGELES, CALIF.
OAKLAND, CALIF.
TORONTO, CANADA
MONTREAL, CANADA

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—at the Address Given in the News Item



Edwards Adds Four Big Boiler-Burners

Addition of four larger models to its line of gas or oil-fired boiler-burners was announced recently by Edwards Engineering Corp., Dept. AC&RN, 101 Alexander Ave., Pompton Plains, N. J. New models have ratings ranging from 1,200 to 4,000 sq. ft. Previous models ranged from 585 to 1,200 sq. ft. Gross output rates for complete line range from 100,000 to 600,000 B.t.u.h.

All boilers feature pre-packaged and pre-wired components and may be obtained with completely pre-assembled motorized zone control valves. Built in automatic air elimination devices are included in all boilers.



Inherent Protection On Small G-E Motors

A new line of inherently protected, three-phase, small integral horsepower motors, designed to respond to both current and temperature for protection against excessive overload currents, stalls, single-phasing, and high ambient temperatures, has been announced by the Small Integral Motor Dept., General Electric Co., Dept. ACRN, 1605 Winter St., Fort Wayne 4, Ind.

The motors are for use with air conditioning and refrigeration compressors and other applications where severe-duty cycles are encountered. Inherent motor protection should also be applied where a single control is used for more than one motor or where the control is remotely located from the motor, according to company engineers.

"An inherent protection device, located on the motor frame and protected by a pressed-steel cap, contains a snap-acting thermal disc, three contacts and three heating elements in a molded phenolic base," it was explained.

"Ice-Flo" ICE CUBE MAKERS—Solid Ice Cubes
1000 to 3000 pounds daily
Standard and custom-built models to fit small spaces and low ceilings
Resales financed nationally; up to 3 year plans
Dealerships open: Commissionaires inquiries invited
N. SILVERMAN, INC.
488-7th Ave., N. Y. LA. 4-2640



Wall Furnaces Styled For Use In Any Room

Oil and gas wall furnaces "attractively styled for installation in any room in the house" have been introduced by Perfection Industries, Div. of Hupp Corp., Dept. AC&RN, 1135 Ivanhoe Rd., Cleveland 10.

Designed with the same styling and many of the engineering advances of the Perfection "Regular" furnace selected for the U. S. exhibit at the Brussels World's Fair, the new units fit

snugly into a wall with only the decorative expanded metal grilles showing, the announcement pointed out.

In heating large areas, vertical directional louvers may be positioned to direct warm air to the right or to right and left. Accessory registers may be installed to direct warm air into other rooms.

The oil-fired furnace is rated at 61,000 B.t.u. and the gas-fired model at 75,000.

"Heat boosting radiators and glasswool-aluminum foil insulation cut fuel costs by assuring full heat utilization," Perfection further stated.

"The glasswool and aluminum foil insulation, which directs heat inward, also permits a compact installation with small clearances. No clearance is required between furnace casing and shielded studs and very little between furnace and unshielded surfaces."

Over-all dimensions of the units are 52 in. high, 23 in. wide, and 26 in. deep.

Snap-On Insulation Has Low K Factor

Based on "Nacconate" diisocyanates, the insulation is designed for service between -200° F. to 250° F.

It is said to be ideal for all refrigeration work and low-pressure (5 p.s.i.g.) steam lines.

"Urethane insulation offers several other advantages," the announcement said. "It does not fray, crumble, or break in handling; neither does it disintegrate when subjected to water or many other liquids."

"On drying, the insulation is as good as new."

"Another important feature is that the insulation is preformed to fit pipelines and fittings. Its outside diameter is such that it will nest correctly with a second layer, in case heavier thicknesses of insulation are desired. The dual-layer procedure also permits staggering of joints to reduce heat loss to a minimum," the manufacturer points out.



A new type of snap-on thermal insulation is now available, having a low k factor, excellent resistance to physical damage, and unusual resistance to chemicals and solvents, according to National Aniline Div., Allied Chemical Corp., Dept. AC&RN, 47 West St., New York City 6.

FROM ANY ANGLE...
there is no substitute for
SPORLAN 'G' VALVE
PEAK PERFORMANCE!

*from Strainer
to Outlet...*

*from Element
to Seal Cap...*

SPORLAN 'G' VALVES ARE YEARS AHEAD
... in design and serviceability.

Ask your wholesaler for literature... and include Sporlan Catch-Alls, See-Alls and Solenoid Valves with your G Valve order.

Get Peak Performance Right Down the Line!

More engineering features are incorporated in them than in any other valve... yet the basic design has never changed!

SPORLAN "C" CHARGE
for Suction Temperatures Above ZERO...

SPORLAN "Z" CHARGE
for Suction Temperatures Below ZERO...

and SPORLAN "X" CHARGE
for Extremely Low Temperatures, have long since proved that **ONLY SPORLAN SELECTIVE CHARGES** can give you Peak Performance on all applications!

SPORLAN
VALVE COMPANY
7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI
EXPORT DEPT. 85 BROAD STREET, NEW YORK 4, N. Y.

Modern Installation and Service Tools, Instruments Save Labor, Increase Income, and Impress Customer

(Part Two)

Editor's Note: In the first instalment of this article, which appeared in the Sept. 8 issue, A. E. Manning, president of Refrigeration Service Engineers Society and vice president of a leading New Jersey service firm discussed the use of many modern tools and instruments to save time and money in installing air conditioning and refrigeration equipment. In this instalment Manning continues the description of tools for installation work and then moves on to discuss tools for use in servicing such equipment.

"Once the system is complete and presumably tight, thorough evacuation is the next step and at this point the vacuum pump comes into play. It is important

that final evacuation be done with a regular vacuum pump designed for pumping to pressures as low as 50 microns and lower if possible.

"For the first rough evacuation of a system a good refrigeration compressor may be used. Once the system has been pumped to the lowest possible pressure within the capability of the compressor, the system should be shut off with gauges attached at convenient points and the system allowed to stand for a short time to determine if there are any large leaks which would be indicated by rising pressure on the gauges.

"Once it has been determined that there are no large leaks, a test charge of refrigerant

should be introduced into the system and a thorough leak check with a flame type leak detector conducted. Once it has been determined that no leaks are present, the test charge should be pumped out and the vacuum pump attached. Pumping should be started and continued until the vacuum pump has reached the lower limit of its capabilities.

Some Pressure Must Be Expected

"After it has run at its lowest limit for at least 20 minutes, the system should be shut off and any pressure rise noted. There is some pressure rise to be expected even on a small system but this should never go beyond

a few millimeters on a mercury manometer. If pressure rises rapidly, it is an indication that a leak has not been detected, and it, of course, must be found. I have found that a dental mirror and flashlight to enable me to see the back of brazed joints not easily observed often shows doubtful spots which upon a second leak test prove to be the source of pressure rise.

"In the event that a leak is found, repair must be made and the pumping process repeated. Once the system is known to be tight and the vacuum pump has been allowed to stand without undue pressure rise, it is reasonable to assume that the pumping operation can be completed.

The vacuum pump should be started and allowed to run at its low limit for at least 30 minutes if the system on which it is operating is at a temperature of 60° F. or above, but pumping time should be doubled for temperature below 55° F.

Principal Reason For Evacuation

"The principal reasons for evacuating a system before putting it into operation are, of course, to remove non-condensibles and remove moisture. Either of these are foreign to the system and are the cause of most internal troubles. The air which makes up what is known as non-condensibles is quickly removed, but moisture in minute particles lurks in every crevice even after considerable pumping," Manning said.

"Lines connecting the vacuum pump to the work should be as short as possible and as large in diameter as possible. Pressures of 50 microns at the pump can easily become millimeters at the remote end of the system and pumping, if possible, at a point midway between the high side and low side may on occasion be better than having the pump attached to the condensing unit.

Mercury Manometers for Pressures in Vacuum

"Mercury manometers are recommended for determining pressures in vacuum. Although very accurate checks can be made by measuring the temperature of water being evaporated in a closed system attached to a vacuum pump, this method adds water vapor to the vacuum pump and in those pumps which are oil sealed this water added to the oil together with the water drawn from the system just advances the time when the oil must be changed.

"In any event, the conventional compound gauge should never be relied upon to measure pressures during vacuum pumping," he declared.

Instruments and Tools In Service Work

"Instruments and tools which can save time and labor in service operations are far more numerous than those common to the installation of the equipment.

"Electricity makes possible the mechanical refrigeration or air conditioning plant and the measuring of electrical energy, its pressure, its quality, if you please, ranks high in importance in service operations.

"The public utilities which produce and distribute the electrical energy have done an outstanding job and by and large have been able to supply current of the proper characteristics throughout their entire distribution system, but they have little or no control over the numbers of devices which are added to their lines and, once the building is occupied, may never know that substantial additions have been made to the load they must carry.

"Single phase current demand in my own area of the east up until a few years ago reached its peak at the Christmas season. Now it comes in June, July, and August, and in the late afternoon and early evening hours.

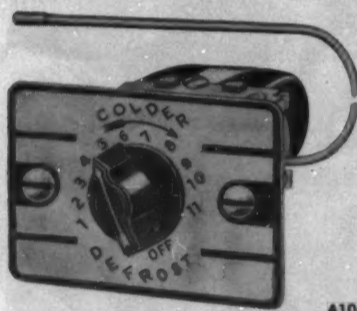
"Last summer in several large

INSTALL RANCO CONTROLS...to be sure!

More than a hundred million (100,000,000) Ranco controls are in use . . . When replacement is required, even though it is not a Ranco, there are many different Ranco replacement controls available so you can be sure of a perfect fit, performance and long operation. When the service-

man installs a Ranco Control, it's right . . . to be sure!

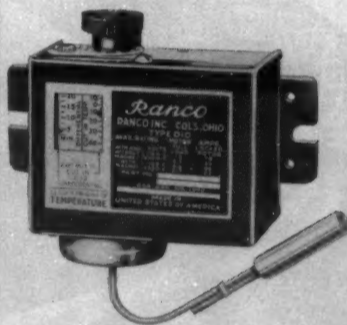
Contact refrigeration parts distributors or dealers or write direct to Ranco Incorporated for control information on new applications or on replacement.



HOUSEHOLD CONTROLS

Control is generally used as a replacement or for new household refrigerators not requiring direct current application or tubing not longer than 25 inches.

A10-518



COMMERCIAL CONTROLS

On new installations, and guided by control scale plates, the Range and Differential are adjustable to set for varied applications—beverage, milk, beer and water coolers, freezer and ice cream cabinets, display and medical cases, ice makers, floral walk-ins, etc.

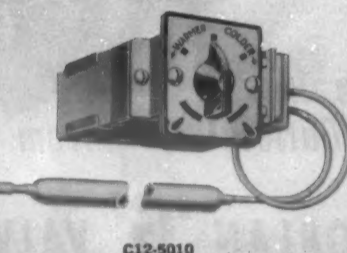
010-1408



AIR CONDITIONING CONTROLS

With a 3" fixed differential, will automatically maintain the cool room temperature as selected by the dial pointer.

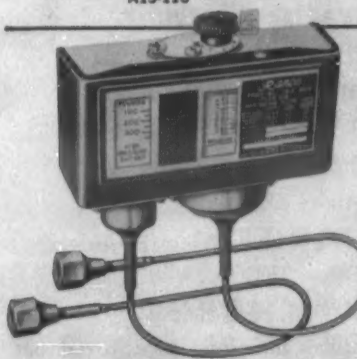
A13-110



UNIT AIR CONDITIONING CONTROL

Has a 3" differential over a range from 60°F to 98°F. Being a single pole, double throw switch, can be used for cooling only, or by adding a manual selector switch, can cycle the unit on cooling and heating.

C12-5010



DUAL PRESSURE CONTROL

This Ranco commercial control for air conditioning systems features a high pressure cut-out with non-adjustable high pressure safety limit stop, low pressure safety cut-out and a manual reset arm for both the high and low pressure cut-out.

012-1594



ELECTRICALLY HIGH-RATED PRESSURE, TEMPERATURE CONTROLS

Accommodate higher electrical ratings through 15.5 amperes, full load, on some commercial equipment. Switches open or close on rise of temperature or pressure. Selective pressure ranges: 5 to 360 psi. Selective temperature ranges: -30° to 105°.

016-107

World's Largest Manufacturer of Refrigeration Controls



Ranco
INCORPORATED
COLUMBUS 1, OHIO

areas, window type air conditioner service calls ran 10 times the capacity of all of the service organizations on several occasions and this all because of low voltage. I know that many units were removed and sent to repair stations because voltage was not checked before the unit was condemned. The use of a voltmeter would have avoided a lot of work and expense.

"Very often refrigerators, freezers, and air conditioners are purchased with little or no thought to the adequacy of the wiring in the establishment where they are to be installed. Once the installation is made and the wiring is found to be inadequate, the seller and the installer are in trouble. The purchaser, particularly if he hasn't paid for the equipment, hasn't much to worry about.

"You might not make the sale or get the installation work if you used a load check device which puts a locked rotor load on the line to determine whether the current supply is adequate, but you would save time and effort of the delivery, installation, and removal. Also, faced with the alternative of having adequate wiring installed or having to do without the appliance, the purchaser will have the wiring installed.

"Many times we have been called on service complaints to find the equipment working perfectly but to be told that last night something was definitely wrong. Obviously we cannot spend the night with our customer but a recording voltmeter will tell us if a low voltage condition occurs any time in the 24 hours, and a recording ammeter will record any fluctuation in the load.

Use of Wattmeters

"Wattmeters are particularly useful in freezer, refrigerator, window type air conditioner, and appliance service. Grounds and open windings can be quickly discovered with a wattmeter and broken valves, worn and inefficient pumps are sure to appear in low wattage on the meter," Manning explained.

"Ohmmeters are increasingly popular with service people. In addition to the conventional motor testing, which has been their use in the refrigeration service business over the years, wiring systems, thermocouples and now the cables of the electrical defrost heaters, the use of which is becoming so widespread, have broadened their application greatly.

Hook-on-Ammeter Saves Hours of Time

"One of the devices which, in the electrical phase, can save hours of time and labor is the hook-on ammeter. These devices hooked around a single conductor will accurately indicate the amperage draw of the device being served by the conductor. One use is, of course, to determine whether the motor on the air handling unit can take any additional load. Check the nameplate rating of the motor, hook on the ammeter, and you have the complete story. These devices are also equipped with a volt scale and by attaching two leads become a voltmeter.

"While on the subject of motor loads and fan speeds, a device which is not expensive

but will take a lot of guesswork out of service is the tachometer.

Tachometer Reveals Just What R.P.M. Is

Very often the question: Just what is the r.p.m. is important and the tachometer will tell you very quickly," Manning said.

"Another device which proves very useful on occasion is the strobe light. Often it is difficult to reach a shaft to check speeds with a tachometer, but if any portion of the moving part can be brought into focus of the light beam, the revolutions can be counted.

"The condensing unit is the heart of the mechanical refrigeration or air conditioning system and any degree of performance less than perfect is very quickly felt throughout the system. The pressure and compound gauge connected by the gauge manifold is the stethoscope of our profession. With

this tool compressor efficiency can be checked, leaking or broken suction and discharge valves detected, faulty metering devices such as float valves, expansion valves, and capillary tubes or restrictors make their presence known, and condenser troubles send their warning signals.

Capillary Tube Tester

"One device on which quite a bit of research and experiment has been done in the past few years, and which is only now coming into the place which it deserves in our service picture is the capillary tube tester.

"There are several of these devices on the market but some are rather bulky. Most have been priced a little high in relation to the frequency with which their use would effect a saving in time and expense. Now, however, with the rapid transition to component change

on sealed systems, these devices are very useful.

"Partial restriction of capillaries can be difficult to diagnose, especially if the restriction is not enough to cause a pronounced difference from normal pressures. A few pounds too great pressure drop on the restricting device can cause unsatisfactory performance of the system, but unless the capillary is checked individually and apart from the system, this can be overlooked," he said.

"The problem of charging a system in the field once a repair is completed is greatly simplified with these devices.

"In the past there were two ways to get the correct charge into the system. One was charge refrigerant into the system in the vapor state until a slight frostback occurred after pull-down, the system was checked and by adding and removing refrigerant as required, the cor-

rect charge could finally be introduced into the system.

"The other way was to weigh into a cylinder the correct charge and charge from this cylinder into the system. Obviously, the latter method was not possible without having the charge weighed in the cylinder at the shop or charged into the cylinder from a charging board. Both methods are time consuming and therefore costly.

"In the very recent past these capillary checking and charging devices have been reduced in size and cost, simplified procedures have been developed, and tables covering various diameter capillaries and the pressure drop for a given length at a given primary pressure prepared. By attaching the capillary tester to the cap tube and the secondary pressure checked against the table trouble can be diagnosed quickly.

(To Be Continued)

the meaning of custom-made quality brazing alloys



Scientific COLOR analysis keys quality control of United Phoson and Sil-bond brazing alloys

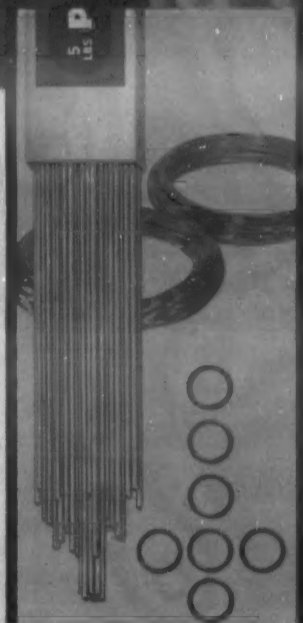
Brazing results depend upon alloy uniformity... that's why United scientifically controls this vital factor through the modern miracle of spectrographic analysis. Skilled technicians arc test United Phoson and Sil-Bond alloys. This sets up a color spectrum which is analyzed by ultramodern, spectrographic equipment... and results in the most positive alloy check ever developed!

Spectrographic control coupled with United's continuous casting production processes are the reasons why Phoson and Sil-Bond alloys assure uniform results, speed up production and reduce finishing requirements.

A colorful new 8-page booklet, "Low Temperature Brazing Engineering Facts and Data" is packed with valuable information which you need for more profitable brazing. A copy is yours free. Write, wire or phone, today.

UNITED WIRE AND SUPPLY CORPORATION
1497 Elmwood Avenue, Providence, Rhode Island

In coils, straight lengths, or pre-formed rings, Phoson and Sil-Bond brazing alloys are available through welding supply dealers everywhere in the United States.



Specify **UNITED**

for brazing alloys... aluminum, brass, copper tube and wire

Report on Education

Another article in a series dealing with all levels of education and training in the air conditioning and refrigeration industry.

3. College Credit—Technical Institutes

By Frank J. Versagi, Technical Editor

Although the subject of accreditation was mentioned before, it is very important for the student to think ahead enough to determine whether he will need credits for the two years he has spent in school. In such a case, he has no choice but to pick an accredited school which issues an associate degree of some sort.

Even then, however, he should determine whether the full colleges he may eventually attend will accept such credits, for accreditation—like traffic laws

—differs from community to community, and often with no apparent legitimate reason.

For those who feel certain that their aspirations will be satisfied and met by technical institute training, it is only necessary to choose a school with a good reputation for turning out industry-accepted graduates.

One example of such a respected school is the William Hood Dunwoody Industrial Institute in Minneapolis, even though its curricula are not

accredited in the formal sense.

A privately-endowed, non-profit organization, Dunwoody offers pre-employment training, courses for indentured apprentices, and short-term clinic type courses for special groups.

Cooperating actively with industry, the institute recently was host to a regional RSES meeting at which several manufacturers displayed products and offered educational sessions.

Like most technical institutes, Dunwoody places heavy emphasis on shop—or manipulative skills. Thus the students taking air conditioning get a concentrated dose of sheet metal, pipefitting, drafting work. The intent, according to Floyd H. Schneeberg, head of the air conditioning department, is to give the student practical train-

Table 3—Typical Technical Institute Courses In Refrigeration

William Hood Dunwoody Industrial Institute, Minneapolis
Arranged in 18 four-week segments

Basic Electricity	Basic Refrigeration	Domestic Units
Domestic Service	Sealed Unit Repair	Oil and Gas Burners
Appliance Repair I	Appliance Repair II	Appliance Repair III
Elements of Cooling and Heating	Automatic Controls	Motors and Starters
Pipefitting	Commercial Service	Advanced Commercial Service
Industrial Service	General Service and Repair	Layout and Estimating

(Classes include lectures on business, labor practices, and like.)

Hudson Valley Technical Institute, Troy, N. Y.
Arranged in six three-month quarters

1	2	3
Refrigeration Principles	Refrigeration Principles	Technical Math
Technical Math	Technical Math	Mechanical Drawing
Mechanical Drawing	Mechanical Drawing	Commercial and Industrial Refrigeration
Applied Physics (Heat)	Industrial Electricity (D.C.)	Industrial Electricity (A.C.)
Communications Skills	Communications Skills	Communications Skills
Introductory Sociology	Problems of Human Relations	
Coordinating Conference		5
	Sheet Metal Design	Systems Design (Air Conditioning)
	Systems Design (Heating)	Air Cond. Principles
4	Air Conditioning Principles	Electrical Controls
Applied Physics (Mechanics)	Estimating	Salesmanship
Sheet Metal Design	Economics and Business Methods	Industrial and Labor Relations
Heating		Coordinating Conference
Metallurgy		
Heating Equipment		

Ferris Institute, Big Rapids, Mich.
Arranged in six three-month quarters

1	2	3
Basic and Domestic Refrigeration	Refrigeration Fundamentals of Algebra	Commercial Refn. Technical Math (slide rule)
Basic Metal Shop	Sheet Metal Drafting	Mechanics and Heat
Technical Drafting	Health & Physical Ed.	Health & Physical Ed.
Basic Math		6
Health & Physical Ed.	5	
	Air Cond. I	Air Cond. II
4	Combined Welding	Foremanship
Air Cond. & Htg. Fundamentals	Political Science	Training
Sheet Metal	Communications	Elective
Man and Society	Skill	
Communications		
Skill		

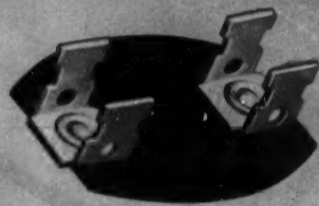
ing and work experience in the procedures and techniques used in the trade.

But more is needed, Schneeberg holds. "A man must get a job, hold the job, and advance in a job. If he is content with the first two, there is no need for him to take more than the essential shop subjects.

"But if a man is to be a true technician, he will have to master much more than the manipulative skills."

To give students the necessary broader background which converts them from skilled craftsmen to technicians, the institute adds instruction in (Continued on next page)

NEW
from **AEROVOX**



"PRINTED RESISTOR" AC CAPACITORS

Fixed carbon resistors soldered across capacitor terminals are now made old-fashioned and obsolete by Aerovox's new "printed-resistor" AC capacitors. Developed especially for manufacturers of air-conditioners, these new units establish completely new standards of safety and reliability.

Aerovox "printed resistor" units automatically bleed voltage out of capacitor when the circuit is turned to "off" position to prevent point burnouts in relays. This also provides for safer servicing by eliminating charge normally left in the capacitor.



FASTER assembly operations. No leads to cut, no cluttered terminal assemblies!



SAFER servicing by eliminating charge normally left in capacitor!



INSURES against point burnouts. Bleeds voltage out of capacitor when circuit is turned off!



SAVES TIME AND MONEY through faster assembly, no faulty connections or costly down time!

"PRINTED RESISTOR" UNITS ARE AVAILABLE IN THE FOLLOWING STANDARD VALUES:

15,000 ohm — 2-watt	30% — 1-13/16 dia. cover
15,000 ohm — 2-watt	30% — 1- 7/16 dia. cover
20,000 ohm — 4-watt	30% — 2- 1/16 dia. cover
20,000 ohm — 4-watt	30% — 2- 9/16 dia. cover

For full information and technical details write to:

AEROVOX CORPORATION
NEW BEDFORD, MASSACHUSETTS

FREE BULLETIN

tells how

ANEMOTHERM Air Meter

saves in balancing air conditioning, heating and ventilating systems

The Model 60 Anemotherm Air Meter, developed by the Anemostat Corporation of America, gives you — in one convenient instrument — a simple, rapid method of balancing and checking any air system. It puts at your fingertips, by means of color-coded pushbuttons, air velocity, air temperature and static pressure. • The Anemotherm Air Meter pays for itself through time saved on only one major job. Write for Bulletin 55 giving all the facts.

AC 1338

ANEMOSTAT CORPORATION OF AMERICA
10 EAST 39th STREET, NEW YORK 16, N. Y.

(Continued from preceding page) whose curriculum is also shown in Table 3.

A very few of the 625 junior colleges around the country offer extensive courses in refrigeration and air conditioning. Most of these, while offering terminal two-year courses in fields demanded locally, stress college preparatory work. Most will offer a one-shot course in refrigeration theory or air handling, if enough local interest is generated.

The true technical institute is destined to assume an increasingly major role in our educational system as the realization grows that not all who go through high school have the desire or the need to go through four years of college. Offering what may be termed a rounded vocational education, the technical institute offers the student/employee/apprentice quite a bit for his time and money.

(Next: Trade Schools)

The air conditioning-refrigeration-appliance course, for example, is divided into 18 four-week segments. Each segment is devoted to one phase of the entire course, although some elementary segments lead naturally to more advanced ones.

For example, there are individual four-week segments on basic electricity, automatic controls, motors and starters, oil burners, and gas burners. Then there are progressive segments like Refrigeration 1, 2, 3, etc.

Incidentally, the institute includes repair of heavy appliances—ranges, washers, dryers—in its refrigeration course because "it was found that electricians are not fulfilling this need, and in smaller communities especially, there is great need for the all-round repairman."

Ferris Institute, a state-owned institution in Big Rapids, Mich., offers a two-year course covering the same basic subject matter, but arranged differently.

Ferris' courses are divided into six three-month quarters as shown in Table 3.

The six-quarter setup is also used by Hudson Valley Technical Institute of Troy, N. Y.,

What's Happening In the Field of Education

NATIONAL MERIT SCHOLARSHIP CORP., founded with grants from Ford Foundation and Carnegie Corp. will provide 325 scholarships next school year. Students compete on a national scale for the scholarships by taking examinations. Eighty corporations, foundations, and individuals, and professional societies will also award scholarships to participating students.

OVER 500 WESTINGHOUSE ELECTRIC CORP. employees have received advanced degrees under a company-sponsored program which encourages personnel to seek post-graduate education.

Company refunds half the tuition to the employee when he successfully completes each course. Remaining half of tuition is refunded when entire scholastic program is completed.

Average student gives up three hours leisure time two or three nights a week while working for a master's degree.

DRAYER-HANSON Div., National-U. S. Radiator Corp., has welcomed the first student to graduate from California State Polytechnic college under the company's full four-year scholarship. According to the company, Cal-Poly offers "the only four-

year program which leads to a B.S. degree in Air Conditioning and Refrigeration."

Under the scholarship program, vacation periods serve as on-job training time for the student.

TRANE CO. announces that 12 college and university engineering graduates have just completed a graduate engineering training program at Trane. The "post-graduate" program is designed as a practical supplement to the formal engineering education acquired in college. Applications of engineering principles are presented throughout the program to prepare graduates for a place in the air conditioning industry.



IT'S THE GREAT NEW TORRINGTON MIXED-FLOW RADIAX | 6 SIZES FROM 300 TO 3000 CFM | SAVINGS UP TO \$10 PER UNIT | SIZE, WEIGHT AND MOTOR ECONOMY | PLUS TORRINGTON REPUTATION | FULL DETAILS AND ENGINEERING SERVICE ON REQUEST

IN YOUR
'59 DESIGNS

THE TORRINGTON MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT • VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO



GUARANTEED
LOOP HOTEL
ROOMS
anytime to
PREFERRED
GUESTS *
* During certain convention periods, all available Chicago hotel rooms are frequently taken. The Hamilton guarantees (with advance notice) reservations anytime of the year to you, the preferred guest. Ask for your "Preferred Guest Card", today... at no obligation.
Rates \$5 from
THE NEW HAMILTON HOTEL
20 SOUTH DEARBORN
Preferred by guests in
CHICAGO
IN KANSAS CITY IT'S THE
BELLERIVE HOTEL
100% AIR-CONDITIONED

Air Distribution Requirements In Year-Round Air Conditioning

Part 2-Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

To illustrate some of the extremes to which equipment manufacturers go in determining function and their performance data, in order that the systems designer will "get out of the duct and into the space" what the equipment involved was designed to do, see Figs. 37 through 44.

In these illustrations a horizontal duct-type furnace, design for year-round heating and cooling operation, is being checked out against its design performance data.

Fig. 37: Here a discharge

Plenum with a takeoff duct, having an adjustable "Static Cone" is shown attached to the furnace. The static cone restrictor may be adjusted to any resistance up to and including 5.0 in. WG.

Fig. 38: The Fan is started on the equipment and the motor here is being checked out for initial voltage supply and amperage. The Static Cone is then adjusted to show on the Draft Gauge (which is not discernable in Fig. 37 except for the Tubing leading to the gauges), a Static Pressure of 1.5 in. WG. At the

same time readings are taken for internal static in the furnace bonnet and on the return, with adjustments made by the Cone until the additions of all three amount to a TSP of 2.0 in. WG. Voltage and Amperage is then read as the OPERATING ELECTRICAL CHARACTERISTICS AT 2.0 in. WG TSP.

Fig. 39: Thermocouples pre-established in the motor windings are connected to a potentiometer with readings taken after 30 minutes of operation of the motor against the Total Static Pressure induced.

Fig. 40: At the end of the 30-minute period the Fan is then checked for r.p.m. Here it is being done by a General Radio STROBOTAC, which reads direct in r.p.m.s by "Strobe-flutter" through the plate glass observation window. In this manner no pressure loss is encountered to mislead from actual maintained conditions. Furthermore, one reads the ACTUAL R.P.M. OF THE FAN, and does not encounter any misleading readings when taken by the counter method from the shaft.

Fig. 41: The furnace is of the gas-fired type, thus it is checked out first on the heating cycle. Here in this view numerous thermocouple leads have been established in the bonnet whereby "thermostratification" may be read and analyzed on the basis of the air stream being passed over the heat exchanger for subsequent discharge into the plenum.

After another 30 minutes of operation here under heat, because in the process of heating the discharge air Densities will vary, Draft gauges are checked and the system balanced if any discrepancies toward deficiencies are noted.

Fig. 42: With the equipment and system in balance and all

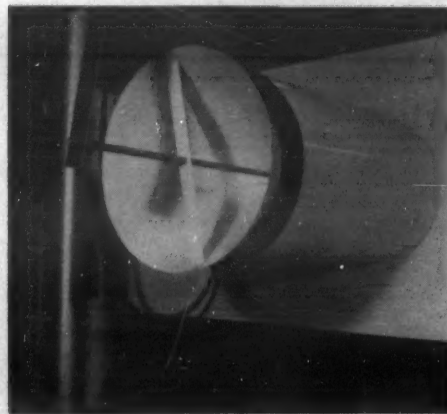


Figure 37

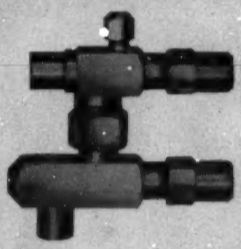


Figure 38



Figure 39

FOR AIR CONDITIONING the Most Flexible VALVES ever made



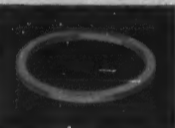
PRIMORE ROTALOCK

The Rotolock is a new type of detachable valve that permits the positioning of suction or discharge valves to rotate to the most desired angle, or in direct line with tubing.

Locking position may be altered as required. The Rotolock is the most flexible valve ever designed.

THE PRIMORE BREAK-AWAY

The Break-Away valve is for remote air conditioning installations. Assures fast, positive connection of tubing from evaporator to condensing unit. Requires no field pre-assembly, no field soldering, no field cleaning and no field charging. Condensing unit and refrigerant tubing are all pre-charged ready for hook up. Will not lose charge.



THE NEW TEFLON FIBER SEAL is now a standard for all Rotolock and Break-Away valves. The Teflon Seal, finest in the industry, is flexible, tough, resists heat, most solvents and chemicals. Not affected by changing weather conditions. Valve may be loosened or tightened often without affecting its sealing qualities.

Primore Sales, Inc.

2460 South Main Street • Adrian, Mich.

Ask for FREE Catalog



Find Out Why Only

HASTINGS

Stainless or Aluminized
GAS DUCT FURNACES

Are Guaranteed
for
10 YEARS

WRITE TODAY FOR
Bulletin A1-98-G and Prices
You Will Be Impressed By Our Complete
Line of Duct, Fan and Blower Unit Heaters

ALSO GAS POWER BURNERS
From 70,000 to 4,400,000 B.T.U.
Ask for Bulletin A1-98-B

HASTINGS AIR CONTROL, INC.

OMAHA 5, NEBRASKA



Edwards Airvec Supplies 10 Tons of Air Conditioning To New Florida Supermarket*

EDWARDS Airvec Condenser Utilizes Convection Principle. Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and



7 1/2 ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept.,

Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

CO-AXIAL FREON CONDENSERS

- COST REDUCED 30% to 40%
- CONDENSER WATER REDUCED 35%
- Refrigerant Charge Reduced
- Stabilizes Capillary Performance
- Smaller Cooling Towers Required
- Shipping Weight Reduced
- Many Shapes and Sizes Available
- Sea Water Models Available

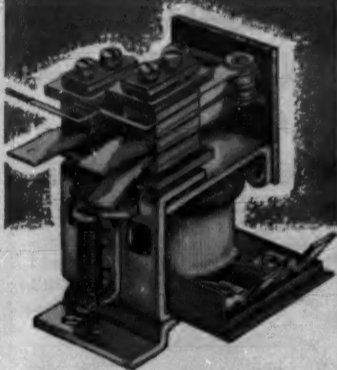
EDWARDS ENGINEERING CORP.

103 ALEXANDER AVENUE • POMPTON PLAINS, NEW JERSEY

*Daylight Grocery Co., 1003 Florida Avenue, Jacksonville, Florida

RBM

can
lower
your
"finished product"
cost...



...with
the 98000
Series A.C. or D.C.
General Purpose
Relays

The basic relay with numerous contact forms, ratings and terminal variations is in regular production. RBM has "CUSTOMER-ized" this type of relay to fit almost every conceivable requirement. This vast background of application engineering can serve you with design short-cuts... lower your "finished product" cost.

Standard versions approved under U/L file Nos. E12139 or E22381.

FEATURES: Pressfit pile-up eliminates drift; assures contact stability... Dependable cross-bar contacts available for low voltage and/or low current circuits. 6 or 15 amp contacts available for power circuits. Simplified magnet frame and armature assembly for efficient, positive action. Variety of mountings. Also available in 97000 Series providing added coil power and greater sensitivity.

A.C.	Specifications	D.C.
98700 type		98600 type
230 AC	Max. Coil Voltage	115 DC
	Max. Coil Res. in OHMS	20000
9.0 VA IN-RUSH 6.5 VA SEALED	Max. Coil Watts or Volt Amps	4.0 Watts
2 PDT 15 amps.	Max. Contact form with rated current at 32 V. DC or 115 V. AC (non-inductive load)	2 PDT 15 amps.
4 PDT 6 amps.		4 PDT 6 amps.
6 PDT 3 amps.		6 PDT 3 amps.

Consult your RBM Application Engineer or write for Bulletin 1080.

RBM
CONTROLS
DIVISION
ESSEX WIRE CORPORATION
Ligonier, Indiana



FIGURE 40



FIGURE 41



FIGURE 42

(Concluded from preceding page)

After having satisfied all characteristics in the Heating Cycle, the entire procedure outlined above is then repeated for the Cooling Cycle, with the direct expansion evaporator, or chilled water coil attached to the discharge end of the furnace between the bonnet and the discharge plenum. (Discharging cold air with potential water carry-over, over a furnace heat exchanger will contribute to ultimate rust of the exchanger.)



FIGURE 43

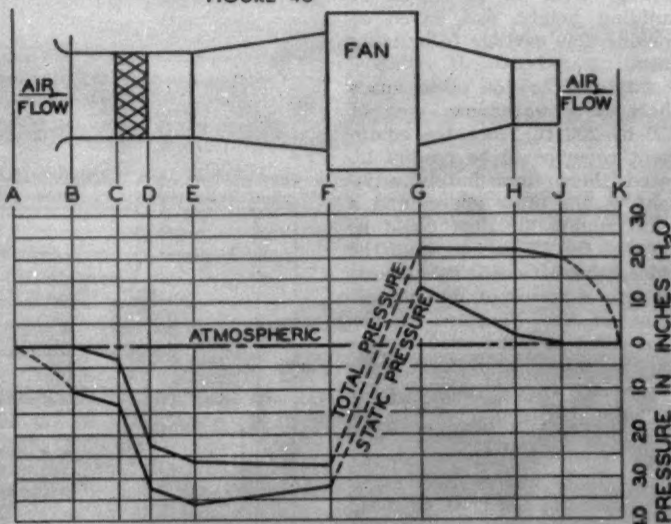


FIG. 45—Here is shown a system, where as the direction of air flow indicates, starts at 0.0 in. WG Pressure, at point "A." As the air starts to flow from "B" to "C" the connection friction loss amounts to very little. However, between "C" and "B" (which in this case is probably the Filter Section) it rises sharply. As one traces the air flow on through the ductwork, the fan and ultimate discharge, using the graphic illustration at the top, an actual picture of what happens is clearly made. By following the Pressure Gradient from section to section, and by adding the pressures together one can see that the Total Pressure Loss in the system is 4.89 in. WG; deduct from this the Velocity Pressure at the Fan Outlet "G" of 0.75 in. WG and the Total Static Pressure of the system will demand a fan capable of producing against 4.14 in. WG TSP.

Thus one can see that if the equipment manufacturer expends such attention to practical application detail, by which he can rate his equipment, integration by the systems designer must be done on no less a basis. Helpful in the analysis of the Pressure Losses involved when designing a system is the suggestion made by Tutt, based on the "Gradient Method." See Fig. 45. Quoting verbatim from his "Principles of Air Distribution." "A useful device for understanding what takes place in a system, is a graphical plot of the system gradient, showing both static tube readings and total pressure readings at points along the system." (To Be Continued)

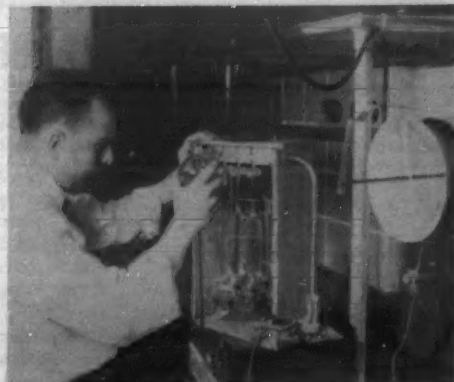


FIGURE 44

American Blower Names McCain To Head Eastern Region

DETROIT—Appointment of J. A. McCain as eastern regional manager, R. C. Wilts as New York branch manager, and H. B. Barron as eastern regional manager, power plant equipment, has been announced by E. W. Petersen, vice president-marketing of American-Standard, American Blower Div. here.

Petersen said the promotions will fill vacancies created by the retirement of Edward W. Legier, former vice president and eastern regional manager, after 35 years of service. Offices will be maintained at 39 W. 39th St., New York 18.

Legier began his sales career with American Blower in 1923 as manager of the St. Louis office. In 1926 he was transferred to New York City as manager of the branch industrial department and was promoted to eastern division sales manager in 1933. In 1953 he was made vice president and eastern regional manager.

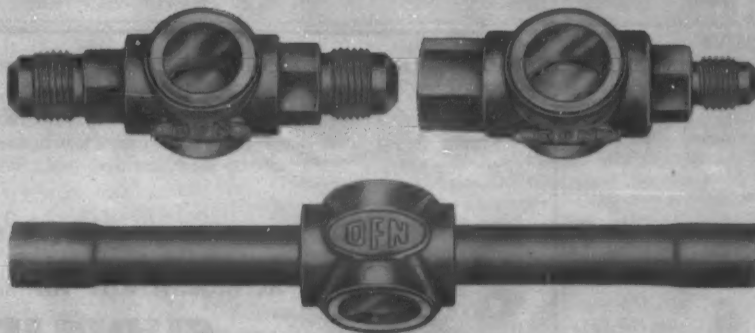
Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzalez—25¢ each.

Get your copy

Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

NEW, IMPROVED DFN LIQUID INDICATORS

now available with Single and Double Ports



Large viewing windows • Crystal clear for undistorted view
Rugged forged brass bodies • Non-directional • Unrestricted flow

The new DFN Liquid Indicators are hermetically sealed as a one-piece unit—have no gaskets or springs—can be brazed into the line without assembly or disassembly—save installation time—and assure a completely hermetic system. Wide range of standard and special connection sizes available. Write for Bulletin G-15B.

- NEW high-temperature fusing method assures permanently leakproof service.
- Many thousands in field service have proven new construction positively leakproof.
- Both models approved for safety by U.L. approval for 500 psi. working service.



THE MCINTIRE COMPANY
Livingston, New Jersey
Makers of Driers—Filters—Strainers
Since 1925

The Consulting Engineer's Column

Aim of this column is to present information of particular and current interest to Consulting Engineers, and those active in application engineering work generally. The editors invite contributions to the column from all who are engaged in such activity.

By A. L. Munson, A. L. Munson & Associates, St. Louis

Fenestra Sections As Supply Ducts

Most of us are familiar with Fenestra roof and floor deck panels, which are designed and engineered upon the principles of cellular formed-beam type construction. They have been widely used in construction, and more recently as electric conduit and electric light "troughers" enclosures, and as acoustic panels which can span 30 ft.

When the local branch office of Fenestra, Inc. decided to build its own building recently, it was faced with problems of maximum floor space, with minimum ceiling heights, to fit a rigid budget.

It was decided at once that Fenestra roof deck panels would be used because of its light weight, efficiency, and low cost. And it was assumed that a hung ceiling would be required for the lighting and air conditioning ductwork.

However, when the engineers for Sears & Piou (the air conditioning contractor) got into the picture and began studying the job, it was decided that no hung ceiling would be required since it seemed entirely feasible to use the Fenestra panels them-

selves as ductwork to supply the conditioned air to the office space, approximately 75 by 60 ft.

The panels were already designed for acoustic treatment, and could also be used for recessed light fixtures.

So, by eliminating the hung ceiling, from 18 to 24 in. of building height was saved at considerable savings in building costs.

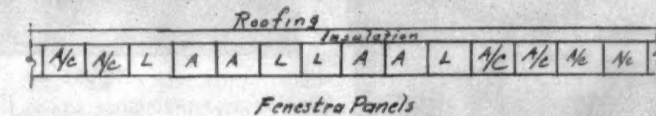
Adjacent to the office space there is a warehouse area of 150 by 200 ft. Thus, the equipment room could be readily located there immediately adjacent to the office space, and a main supply air duct could be run the full 75-ft. length of the office, where it could be connected into a series of double sections of the Fenestra panels. The panel sections used for air supply ducts alternated with those used for lighting and for acoustic treatment.

Four adjacent sections of the panel were used for supply air ducts. This represented 4 ft. of space. The next 8 ft. were used for the recessed lighting and for the acoustic sections. Then the next 4 ft. was used for supply air ducts, all across the 75-ft. length of the building.

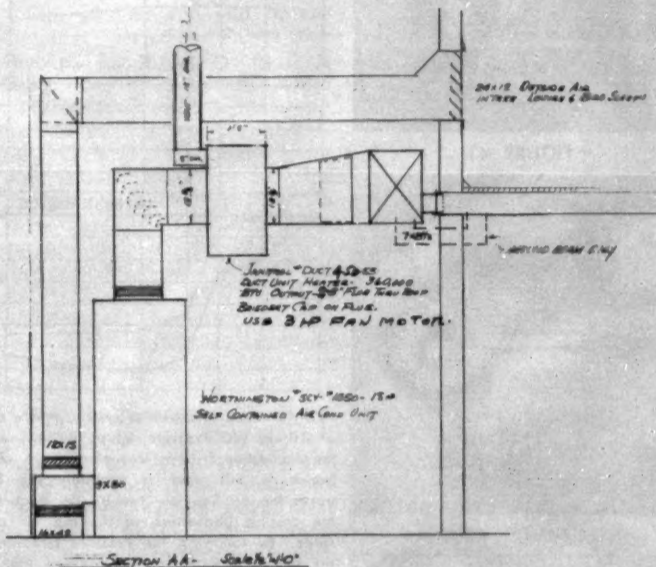
Each individual rib section (Concluded on next page)



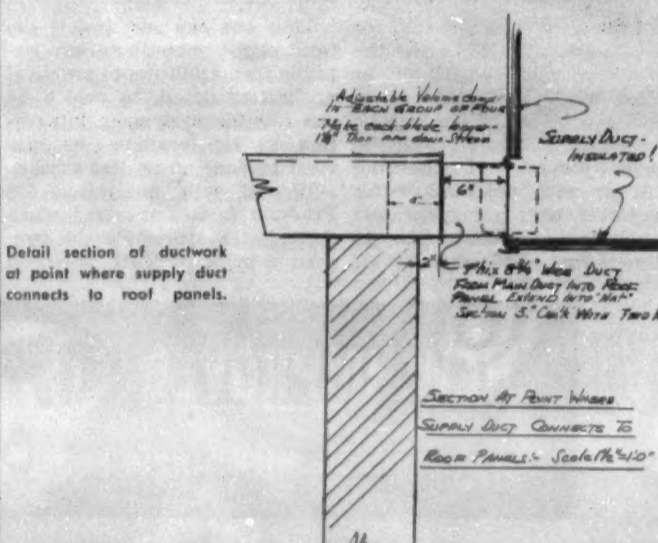
"In construction" view of the Return Air Tunnel where it ties off to the air conditioning unit.



Drawing showing arrangements of Fenestra roof panels in St. Louis building. "AC" panels were used for air conditioning supply ducts, "L" panels for lighting, and "A" sections are acoustic panels.

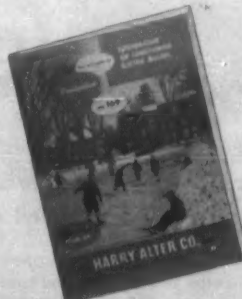


Equipment room, showing fresh air and supply duct connections to Worthington self-contained air conditioner, and location of Janitrol duct heater.



"I CAN ALWAYS GET IT WHOLESALE . . ."

Does your customer ever say that to you? Well he can't get it wholesale from the Harry Alter Co. We sell you . . . not your customer. Our Dependabook is sent only to legitimate contractors and servicemen. We do not believe in back door selling.



We're Real Specialists in REFRIGERATION • AIR CONDITIONING • ELECTRIC MOTORS SUPPLIES and PARTS

SAVE MONEY, time and effort by ordering from our new Dependabook, the most complete catalog of all. 160 pages. Over 10,000 items carried in stock. Wholesale only. Your orders filled really fast by mail, or picked up at one of six big warehouses.

Write on your letterhead for the 1959 DEPENDABOOK . . . Also our monthly Flyer of surplus and close-out Bargains.

The HARRY ALTER CO., Inc.

Chicago 16, Ill. New York 13, N. Y. Dallas 4, Tex. Atlanta 10, Ga.
1212 S. Wabash Ave. 134 Lafayette St. 112 Parkhouse St. 690 Stewart Ave., S. W.

FREE PARKING AND FAST COUNTER SERVICE AT THESE 6 BIG WAREHOUSES



to provide the right size
valve for the right size job.

WATSCO LINE TAP VALVES RANGE FROM 3/16" to 3/8" INCLUSIVE



U.S. Pat. No. 2,827,913



All-time tool designed expressly for Watsco Line Tap, Can Tap and Line Port Valves.

PART NO. CV-1

PART NO. CV-2

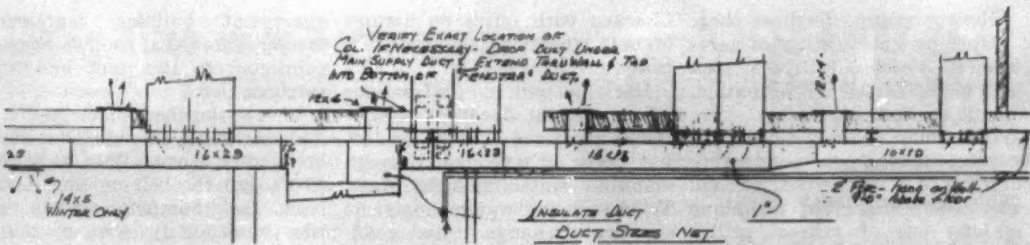
EACH JOB A CUSTOM INSTALLATION. EACH VALVE THE SAME LOW PRICE.

Small and compact, Watsco tapping valves are easily installed . . . Handy inexpensive ports for charging, discharging and testing open and hermetically sealed units . . . No top heavy assembly . . . Will not loosen or leak due to vibrations . . . Will not crimp tubing.

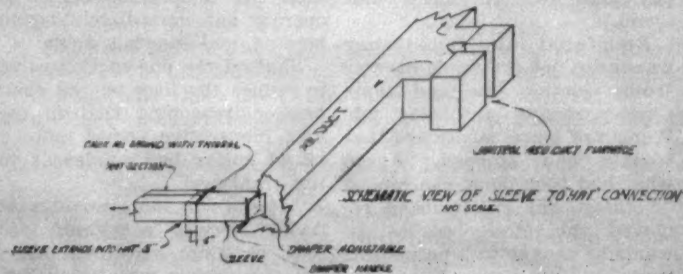
For O.D. Tube	Part No.	For O.D. Tube	Part No.
3/16"	LT-3	3/8"	LT-6
1/4"	LT-4	1/2"	LT-8
5/16"	LT-5	3/4"	LT-10

Watsco line tap valves offer maximum protection with exclusive "3 point sealing."

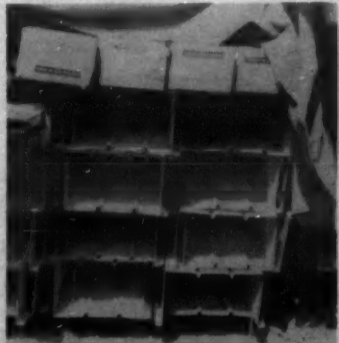
WATSCO INC.
1020 EAST 15th STREET, HIALEAH, FLORIDA.
Send for 1958 catalog.



Part of the detailed drawing for the duct plan for the St. Louis office building air conditioning installation in which Fenestra sections are used for air supply purposes.



Connecting Fenestra sections used as ducts to the main supply air duct presented a problem. By using Thiokol plastic as the adhesive, a flat plate could be connected to the end of the section, to which a short branch duct could readily be connected.



Steel "Fenestra" roof sections, some of which will be used for air ducts.

Now
IS THE TIME
when you
need this

PREST-O-LITE
TRADE-MARK
**Refrigeration
& Air-Conditioning
Outfit**

When your customers want service, you'll need this complete leak detecting, soldering, heating, and brazing outfit—all in a handy steel case. It gives you

- ... **JOB-MATCHED OPEN FLAMES**
Fine, light, and medium torch stems—instantly interchangeable—for refrigeration and air-conditioning jobs.
- ... **SENSITIVE LEAK DETECTOR**
Shows up as little as 100 parts per million of refrigerant gas in air—locates leaks too tiny to find with soapy water.
- ... **PRECISION CONTROL**
Acetylene regulator automatically maintains selected delivery pressure—calibrated screw for flame adjustment.
- ... **EASY TO USE**
Detector is simple and positive—soldering and heating torch concentrates flame where needed—everything in one compact case!

Outfit includes torch handle, leak detector stem, 3 torch stems, regulator, 12½-ft. hose assembly, suction hose, and enameled steel carrying case. Complete (for B or MC tank), \$41.00.

Available now from your local supplier of time-proved LINDE products. Or write for information to LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.



"Linde," "Prest-O-Lite," and "Union Carbide" are trade-marks of Union Carbide Corporation.

(Concluded from preceding page.) measures 9 in. by various heights to 7½ in. and will carry approximately 200 c.f.m. of air, enough for one ceiling diffuser. So one ceiling diffuser was arranged for each of the sections, and spaced appropriately for good air distribution.

Next problem was to find a simple but effective way of connecting each of these duct sections to the main supply air duct. Since each of these sections were formed with a slight "V" groove running the full length of the section in the middle of the top, a tight sheet metal connection could not be made. It was impossible to make a "Pittsburgh" connection to the steel decking.

A simple solution was found after several trial and error methods had failed. By using Thiokol plastic as the adhesive, a flat plate could be fastened to the end of the section, to which a short branch duct could readily be connected.

Thiokol plastic is being successfully used instead of putty for glazing windows. It sets up in about two hours, so it must be used quickly. It is usually applied with a "gun" and retains elasticity with adequate strength for high pressure air distribution applications.

All the supply air main duct was lined with 1-in. internal Neoprene coated Fiberglass for insulating and acoustical treatment.

Since all three outside walls of the office space were largely glass, an underground trench was used all the way around, with baseboard type return grilles spaced about every 10 ft. This assured a good heating job, and would prevent cold drafts around the perimeter.

Duct heaters were used in the discharge from the 15-ton

Worthington packaged air conditioning unit for providing the heat required. The warehouse space was heated with suspended unit heaters.

This is a new application for the Fenestra roof panels which could have a wide application. And the Fenestra floor panels, similar to Electriflor, could readily be used for return air in many applications, for additional savings. Earl McDuffy, regional manager for Fenestra, was instrumental in trying out this new application of the panels for air distribution.

The J. S. Alberici Co. of St. Louis is the general contractor on the job.

AAF Training

LOUISVILLE, Ky. — American Air Filter Co. has begun its annual technical training program, with 15 graduates from 12 colleges and universities.

The 20-week course is conducted by James W. May, AAF's director of technical training, at the firm's home office here.

WHAT .. WHEN .. WHERE

- National Institute of Locker & Freezer Provisioners Convention and Exhibit
Sept. 21-24, Hotel Sherman, Chicago.
- Midwest Association, Refrigeration Engineers Society Educational Conference
Oct. 9-11, Sheraton-Jefferson hotel, St. Louis.
- Refrigeration & Air Conditioning Contractors Association Convention
Oct. 12-15, Broadmoor hotel, Colorado Springs, Colo.
- Air-Conditioning & Refrigeration Wholesalers Meeting
Oct. 22-24, Sheraton-Palace, San Francisco.
- National Electrical Manufacturers Association Meeting
Nov. 10-14, Traymore hotel, Atlantic City, N. J.
- National Association of Practical Refrigerating Engineers Meeting
Nov. 11-13, Kenilworth hotel, Miami Beach, Fla.
- Better Heating-Cooling Council Meeting
Nov. 17-19, New York City.
- National Commercial Refrigerator Sales Association Convention
Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.
- Refrigeration Service Engineers Annual Convention
Nov. 21-24, Neil House, Columbus, Ohio.
- American Society of Refrigerating Engineers Meeting
Dec. 1-3, Roosevelt hotel, New Orleans.

the **in LIQUID EYE**
POSITIVE SEALING INDICATORS
... your sign of **DEPENDABILITY** and **QUALITY**
USE IT WITH CONFIDENCE

- Pyrex glass, double pressure sealed at sides and ends.
- Positive check of refrigerant condition.
- Unrestricted full line flow.
- Spring-loaded gaskets insure positive seal against leakage.
- Guaranteed to 500 psi.
- Precision made.

USED BY LEADING MANUFACTURERS ON ORIGINAL EQUIPMENT
Sold by leading wholesalers everywhere
Write today for Catalog 2-57 covering the complete Allin line

ALLIN MANUFACTURING CO.
410 N. Hermitage Ave. • Chicago 22, Illinois
Over 1,000,000 Liquid Eyes Sold to Date!

THE MASTER SERVICE MANUALS . . .
— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.
BUSINESS NEWS PUBLISHING CO., DETROIT

ALLEN-BRADLEY

reduced voltage

MOTOR STARTERS

BULLETIN 740
MAGNETIC

RESISTANCE STARTERS

For starting heavily loaded compressor motors, there's nothing like an A-B Bulletin 740. Graphite disc resistors are automatically inserted in series with the motor for velvet smooth acceleration. Resistors are preset, but can be field adjusted. For manual operation, use Bulletin 640 stepless resistance starters.

ALLEN-BRADLEY

MOTOR CONTROL

QUALITY

Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis. • In Canada: Allen-Bradley Canada Ltd., Galt, Ont.

AUTOTRANSFORMER STARTERS

For squirrel cage motors where power company rules require starting at reduced voltage.

The economical Bulletin 646 is operated by a hand lever. Bulletin 746 magnetic starter can be operated by push button, pressure switch, etc. The autotransformer has taps to adjust the motor voltage.

Both starters have air break, silver alloy contacts and provide reliable overload protection. When explosive or corrosive gases are present, the Bulletin 646 starters can be supplied with oil-immersed copper contacts.

BULLETIN 646
MANUAL

BULLETIN 746
MAGNETIC

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Doing Time with a Serviceman

Following are word-for-word notes taken by the technical editor as he spent a couple days making the rounds with different servicemen.

Serviceman RH—began with Frigidaire out East in '20's. Had his own shop for a while. On call all the time; didn't like it.

First call: supermarket. Walked in through machinery room. Tyler condensing units. Specific complaint is self-contained bacon display case (not Tyler). Not cool enough. Unit running—semi-hermetic, 1/3 or 1/4 hp.

RH stopped unit, put on gauges, started up. First readings were 15 suction, 90 head; settled down at 9 suction, 110 head. Suction line frosted immediately indicating OK operation of unit. Checked defrost clock, set it up one hour. Will call back.

Politely Ignores

Amateur Advice

Asked to check leaking meat display case; found corroded defrost pan. Two young store clerks full of advice. RH ignoring them politely.

Next call—-independent food market. Ice cream freezer, only part of it working. Operative part enough to take care of load

temporarily. Will call back.

Next, Joe's Little Supermarket, an independent. Weber vegetable case and Bally dairy case both fed off same unit. Vegetable case too cold, dairy case not cold enough. RH says unit was leaking gas couple days ago. He put on new receiver. On this call, he lowered cut-out a couple degrees; dairy case temperature dropped a bit. RH feels makeshift assembly will need some re-engineering for ultimate performance.

Back at first supermarket. Emptied bacon from case. Fan operating OK. Coil seems all right. How does air flow? RH not sure. Removed coil cover (display trays), checked frost on coils. Tried reversing fan blades at suggestion of store manager. No difference in operation. Manager says no good since they got it.

RH noticed that display pans don't seem to fit case exactly. Manager says there is possibility that pans are wrong ones since case was moved from another store in the chain. Couldn't find a nameplate on the unit to determine model number. Manager will check on original data and give RH a call.

Box temperature on leaving—without load—49°.

Next morning. Back at shop. Morning get-together of servicemen. Make out tickets, pick up parts, trade information. About an hour on this.

One man had problem of getting a 7 1/2-ton condensing unit up to a 25-ft. roof. Second serviceman described technique making use of nearest utility pole. Several men had recent troubles with plumbers doing faulty installation jobs.

Went out with BJ today, new man with the company. Before left shop, he worked on an ice cream freezer in a bakery truck which had pulled into the shop.

First job was walk-in meat cooler. One-half of fan coil was heavily frosted. Meat case on same line running OK according to owner. Remote 1 1/2-hp. open Copeland unit. BJ removed bulb of TX valve and warmed it with his hand to be sure second coil would operate—OK. Removed ice from frosted coil with torch, after shutting unit down.

Diagnosis:

Improper Baffle Plate

Diagnosis: improper baffle plate causing frost. Improvised a hanger and baffle. Down in basement noticed condensing unit was noisy. Knocked a wood shim under frame—quieted down.

Adjusted cut-in and cut-out. Will call back to check operation.

Courtesy call to be next—in a beer supply store. Cooler which call was made for was OK, but second cooler had kicked out last night. Owner reset. Units are two 3/4-hp. air-cooled hermetics.

Reset box was quite warm to the touch. Checked heater coils in both boxes to be sure ratings were correct; both all right. Checked all wire connections. Voltage at switch was 225. Tried to check current draw, but found Amprobe inoperative. (Dropped it that morning.)

Blew out condenser coils with CO₂. Phone call later indicated units were performing satisfactorily.

Balancing Concept Explained to Owner

Back to meat cooler, found temperature all right. Oiled fan to speed up because it appeared sluggish. Found that a second meat cooler, originally had operated off same unit, but had been disconnected till floor was repaired to meet sanitary inspection. BJ explained concept of balancing to owner who promised to get second case into operation soon.

Next call a party store. Inoperative dairy case. Unit running. Frigidaire 1/2-hp. water-cooled semi-hermetic. Fogel cabinet.

Suction pressure 20 head pressure 170. But liquid line feels cold, discharge water feels ice cold. Suspected overcharge.

Checked with office on history of unit which was still in warranty.

Back on unit, noticed service valve was not opened properly. Opened it, head dropped to 130. Let some charge out through manifold, watching sight glass. Tried reducing water supply, no significant change. Final readings were 120 head, 16 gauge. Left case at 44°. Other people will be in to talk about meter-pay plan and will check unit again.

Residential air conditioning was next job. Complaint was frozen suction line and evap. Carrier remote air-cooled job. Woman of house mentioned that trouble had stopped. Asked what had been done, she replied "Nothing, but my husband removed the filter because he wants to change to a permanent type."

Old filter was still in basement. BJ examined it, found it almost blocked. Explained significance of this to lady. Gave unit check over.

Sulfur Job In

Apartment Building

And then there was the sulfur job—a model N (1927 or '28) Frigidaire compressor 1/2 hp. although it looked big enough to be a 5-ton unit. Next to this inoperative condensing unit was another just like it chugging away for all it was worth.

There was no odor of sulfur in the basement where the compressors were located; the

apartment building manager merely stated that the five boxes connected to this unit had no refrigeration.

Threw the disconnect switch. The motor ran all right, but the belt didn't move. With a little effort, got the belt moving, and from the thumping sounds it was immediately obvious that there was a worn spot on the belt.

On went the new belt. This time the compressor began to operate but immediately began binding and slowing down.

Shut off the line suction valve to reduce the load on the compressor, reasoning that in the long inoperative period quite a bit of sulfur had condensed in the crankcase.

After a few more minutes of trying, decided something else must be amiss, since even when the compressor wasn't binding, it wasn't running at full speed, and the belt was slipping. Checked the motor pulley; it seemed worn.

No replacement for this model on the truck, so we made a couple of calls before stopping back by the shop to pick up a pulley.

Back in the basement, he installed the new pulley. This time there was no belt slippage, but the compressor still turned too slow. And it still was binding every once in a while. A check on one of the first floor apartments showed that the boxes were beginning to cool.

(Continued on next page)

Work Safe in '58

DON'T GAMBLE WITH
HARSH CHEMICALS — USE

SOLVEX®



Your Best Deal!

For Water-Cooled Equipment

Regular Solvex

Solvex Maintenance

Ultra Solvex

Solvex Algae Control

CSCO Ice Machine Cleaner

See your Wholesaler or write:

CHEMICAL SOLVENT CO.

P. O. Box 487

Birmingham, Ala.

MARSH Instruments

THE SERVICEMAN LINE of Testing
Gauges, Testing Thermometers, Tim-
ers, etc.
PRESSURE GAUGES and Dial Ther-
mometers for all services.
MARSH-ELECTRIMATIC Water Regu-
lating Valves, Solenoid Valves.
MARSH INSTRUMENT COMPANY
Sole Affiliates of J. P. Marsh Corporation
Dept. D, Skokie, Ill.

NOW... FROM REMCO MOLECULAR SIEVE FILTER-DRIERS with DEPTH FILTRATION



Utilizing advanced design Molecular Sieve cartridges, these new Remco Filter-Driers combine unequalled drying efficiency, effective acid removal, generous flow capacity and depth filtration.

The massive depth filter completely removes all scale, sludge, carbon and other particles as small as 100 microns. Molecular Sieves adsorb and retain large quantities of moisture even at refrigerant temperatures of 140°F, and keep moisture concentrations below 10 ppm. Acids are reduced far below dangerous corrosion limits.

Compact in size, the filter-driers are U/L Approved and may be used for Refrigerants 12 or 22, Carrene or methyl chloride. Working pressure is 500 psi; minimum bursting pressure, 2500 psi.

REPLACEABLE CARTRIDGE TYPE units use an "O" ring for a positive, leakproof flange seal. From 3 to 40 tons, with 3/8" thru 1 1/8" sweat connections. SEALED TYPE filter-driers are available in 1 to 12 tons, with 1/4" thru 3/8" flare and 3/8" thru 1/2" sweat connections.

"T" FITTING TYPE in 2 to 6 tons, are readily adaptable to systems using conventional "T" driers.

Remco Molecular Sieve Filter-Driers are available at leading wholesalers. Ask your wholesaler for more information, or write for Bulletin MS-1. Remco, Inc., Zelienople, Pa.

REMCO

MANUFACTURERS OF ADVANCED REFRIGERATION PRODUCTS

Filter-Driers • Liquid Indicators • Receiver-Driers • Check Valves • Safety Devices • Frost-Tite Flare Nuts

Doing Time with Serviceman--

(Continued from preceding page)

Again throttled the suction line valve; gauge readings just before this showed 8 p.s.i. suction, 70 p.s.i. head. Slowly the compressor came up to speed, slowly reopened the valve until the compressor was handling the full load.

He sand-clothed the armature on the motor, gave the whole unit a quick once over. All told, we had to leave the room three times to catch our breath.

During all this time, the apartment manager dropped in every few minutes to see how things were going. At one point, he said, "These things are running all the time; what's the matter with them?"

More patiently and politely than I think I could have managed, RH reminded the manager that the units were 30 years old. Their efficiency was

down; Detroit was experiencing a hot spell. He suggested that it would be worth it to replace these units with individual boxes in the apartments, but the manager's reaction wasn't enthusiastic.

Noticed that the original water control linkage had been disconnected. A low-pressure cutout had been installed, but no high-pressure cutout. He mentioned this to the manager pointing out that should the water flow be interrupted for any reason, it would be important that the units be able to shut down as head pressure went up.

The manager nodded passive agreement, but let it go at that. However, he was impressed with RH's bearing, for in one of his asides to me, he asserted, "I've irritated servicemen with a lot less pestering than I've done today!"

B.H.C.B.

is here!

THIS SYMBOL OF SATISFACTION ON YOUR HEATING INSTALLATION OFFERS NEW



GUARANTEED COMFORT*

FOR ALL HOME OWNERS!

How can you be sure you're getting the best of your heating system? The answer is simple. It's the B.H.C.B. symbol of satisfaction. It's the symbol that means you've got the best of your heating system. It's the symbol that means you've got the best of your heating system. It's the symbol that means you've got the best of your heating system.

The B.H.C.B. symbol of satisfaction is a symbol of the highest quality in heating. It's the symbol that means you've got the best of your heating system. It's the symbol that means you've got the best of your heating system. It's the symbol that means you've got the best of your heating system.

Full page advertisement tells bureau's story and sets its telephone ringing with queries and offers of support.

BANISH STUCK PUMPS!

GET PUMP AID

Now is the time to prevent stuck pumps... expensive and time consuming repairs next Spring—your BUSY season! After draining pump, simply inject PUMP AID into pump housing through drain hole. Aerosol packaged PUMP AID E-X-P-A-N-D-S to cover all interior surfaces. At start-up time—just throw the switch and your pump is running. PUMP AID is water soluble and washes away. Easy-to-follow directions on each can. May be used in any make or model pump.

PUMP AID...

- PREVENTS CORROSION
- PRESERVES SEALS
- WILL NOT FREEZE
- WILL NOT EVAPORATE
- IS WATER SOLUBLE
- IS NOT TOXIC
- IS EASY TO USE
- IS REASONABLY PRICED

Order by the case of twelve cans today from your dealer and be prepared when shut-down time comes. Or write...



Detroit Group Offers 'Guaranteed Comfort'--

(Concluded from Page 1, Col. 5)

tional Association, Local 281. The bureau claims to speak for the entire sheet metal and air conditioning industry. It has 125 licensed members scattered over the four-county area of metropolitan Detroit.

Key to the program is the new code. The bureau has been preparing it for the past 15 months, according to Alfred Keats, chairman of the bureau's board of trustees.

Objective is to go beyond present municipal code requirements to assure indoor heating comfort as well as safety. It sets standards for design and installation as well as for safety, he said.

Keats declared that all members of the bureau are pledged to make their installations in accordance with the code. The bureau itself will act as a clearing house of public complaints.

If a member of the bureau fails to meet code requirements in an installation he will be asked by the bureau to bring the installation into compliance. If he fails to do so, the bureau will see that the installation is corrected and that the offending member pays for the work, Keats said.

Installations made by members will be marked by a "guaranteed comfort" shield, indicating that they meet code requirements.

Last week, the bureau launched its program on two fronts.

It splashed full-page advertisements in all three Detroit metropolitan newspapers introducing the bureau and the "guaranteed comfort" symbol to the public.

At the same time, it offered its code to the city of Detroit for adoption as an official code.

According to Keats, the bureau hopes that the city will adopt it and will be followed by the 67 other communities with which Detroit reciprocates on heating licenses.

At an "exploratory" meeting with city officials last week, members of the bureau received a generally favorable reaction. Gen. Clyde E. Dougherty,

commissioner of Department of Building and Safety Engineering, told the group he was very much interested in the code, which he termed "quite ambitious."

"It covers areas that certainly need corrective action," he commented.

In its public introduction of the guaranteed comfort symbol, the bureau spelled out five benefits the new code guarantees.

"1. BHCB heating system will give uniform comfort in every room.

"2. Highest quality materials will be used... and properly installed for economical operation.

"3. Materials and workmanship will be honestly priced.

"4. Materials and workmanship must meet the standards of the bureau's code.

"5. Defects reported to BHCB during the guarantee period will be corrected at no cost to customer."

The bureau offered to answer any questions about the code at no charge and to provide a free booklet on its benefits.

It also offered prospective home buyers and home owners planning to replace their present heating systems the opportunity of bringing their heating specifications or plans to the bureau for inspection.

"A bureau official will gladly advise whether your heating system meets the bureau's code requirements... or he will recommend what improvements should be made," the announcement said. This service is free.

George Asher, executive secretary of the bureau, said that in the first few days after the advertisements appeared, his office was flooded with calls from homeowners interested in the program and from suppliers who wanted to join forces with the bureau.

Asher commented that under the present setup, membership in the bureau is limited to contractors affiliated with Local 281, because the fund from which the bureau draws its finances is part of their contract with the union.

He suggested that the

bureau's board of directors might take up the question of broadening its coverage.

Besides Keats, trustees of the bureau are Norman Nakkula of Royal Oak, Mich., M. Partovich of Detroit, and N. Strickstein of Centerline, Mich.

Three of the trustees are members of the Air Conditioning Institute and the other is an independent.

According to Victor Benjamin, account executive for the Jaqua Co., the bureau plans a weekly follow-up newspaper advertisement to its initial public announcement and possibly some television and radio advertising later. A \$10,000 budget has been assigned.

Keats said that each member



MISS NATIONAL HOME WEEK, holding official emblem and shield, helps kick-off B.H.C.B. promotion. Al Keats, chairman of the bureau's board of trustees, and Dwight Hamborsky, head of the FHA office in Detroit, look on.

of the bureau is assessed so much per employee per hour worked to finance the program.

While the first phase of the promotion is aimed at the residential homeowner and buyer, a second phase is scheduled to go into effect in 1959. This will be aimed at architects, engineers, and constructors.

Code drafting consultants who worked with the bureau are Frank J. Drogosch, chief safety officer for the city of Detroit, and Edwin B. Root, consulting engineer long active in educational and code work for NWAHACA and the American Society of Heating & Air-Conditioning Engineers.

Root said that the new code is based on the present ASHAE code and the NWAHACA manuals, plus local requirements.

"This code differs from the ASHAE code in that it has been rewritten to make it more understandable to the average heating contractor and it rejects the air change method of calculating infiltration load. It recognizes the crackage method only."

Drogosch commented that the new code is intended as an industry standard rather than a municipal code and would have to be altered.

2,430 FROZEN FOOD PACKS

and two-side shopping in Warren's new Twin-Isle*!

Maximum capacity in minimum floor space was the problem presented to Warren by retailers everywhere, and 76 years of experience and research paid off again—with the space-saving, big-capacity Twin-Isle Merchandiser.

The Twin-Isle offers two-side shopping from two compartments—yet one refrigerator—holds 2,430 frozen-food packs or 2,160 pints of ice cream, and is only 58" wide over-all. Offers twice the variety of a conventional low-temperature display case!

Lower total investment in cases themselves, less comparable horsepower per lineal foot, installation costs cut in half, and a drastic reduction in cost of operation. Another fine example of product result from Warren's CONTINUOUS RESEARCH Program.

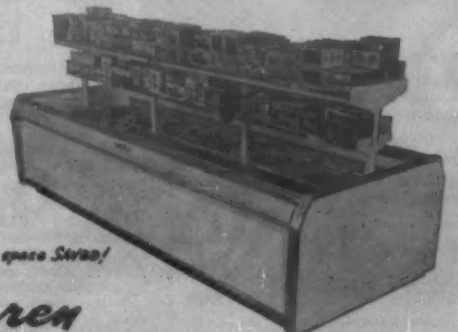
• COLORAMICS® Bands optional at no extra cost.

• Four-shelf merchandising canopies available.

*Patent Pending



this much floor space serves!



Warren Refrigerators

BOX 1436 • ATLANTA 1, GEORGIA
EXPORT DIVISION: P. O. BOX 27864, LOS ANGELES, CAL.

PATENTS

Week of July 8
(Concluded)

2,942,381. VALVED CONNECTOR. George E. Franck, Riverside, Ill., assignor to The Imperial Brass Mfg. Co., a corporation of Illinois.

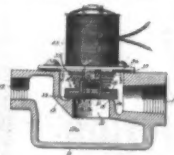


1. A valved connector for ready attachment of a fluid pressure supply line to a device having a tubular connection projection, comprising: a body member having a passage completely therethrough; means for connecting the end of a supply tube to one end of the body member in fluid conductive relationship.

2,942,333. VALVE. George C. Kent, Elmhurst, Ill., assignor, by means assignments, to Controls Company of America, Schiller Park, Ill.

A valve comprising a valve body having an inlet and outlet separated by a partition provided with a valve seat, a valve member for cooperating with said valve seat, said valve member comprising a relatively rigid plate, a facing of compressible resilient materi-

al attached to said plate and cooperating with said valve seat for valve closing, a rodlike member for moving said valve member.

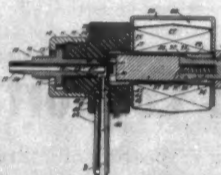


2,942,382. VALVED CONNECTOR. George E. Franck, Riverside, Ill., assignor to The Imperial Brass Mfg. Co., a corporation of Illinois.



1. A valved connector comprising, in combination: an elongated body having a first recess opening outwardly through one end of the body, a second recess opening outwardly through the other end of the body and an axial bore connecting the recesses, the bore having a diameter less than each recess to form a shoulder at the inner end of each recess, the shoulder at the inner end of said first recess forming a valve seat.

2,942,400. DIAPHRAGM TYPE SOLENOID DELIVERY VALVE. Jack J. Booth and William C. Branch, Dallas, Tex.



1. In a valve for dispensing carbonated beverages, a valve body having a side inlet and a bottom outlet, an inlet nipple in the inlet and a discharge nozzle in the outlet, a valve seat in the body aligned axially with the inlet nipple, a solenoid having a housing connected to the side of the body opposite the inlet.

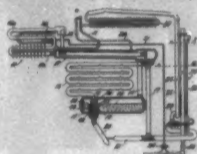
DESIGNS

142,164. SPACE CONDITION RESPONSIVE INSTRUMENT. Henry Dreyfuss, South Pasadena, Calif., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis.



Week of July 15

2,942,943. ABSORPTION REFRIGERATION. Wilhelm Georg Kogel, Stockholm, and Axel Gosta Mellstrom, Johanneshov, Sweden, assignors to Aktiebolaget Elektrolux, Stockholm, Sweden.



1. In the art of refrigeration with the aid of a system in which refrigerant vapor is expelled from absorption liquid in a generator, refrigerant vapor is liquefied, liquid refrigerant evaporates in the presence of an inert gas in an evaporator, refrigerant vapor is absorbed into absorption liquid in an absorber, inert gas is circulated between the evaporator and absorber and absorption liquid is circulated through and between the generator and absorber.

2,943,395. REFRIGERATOR CABINET BREAKER STRIP. John W. Pulaaki, Louisville, Ky., assignor to General Electric Co.

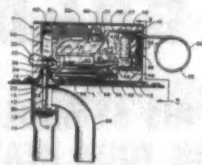


1. A refrigerator cabinet comprising spaced inner and outer shells defining a storage compartment having an access opening at the front thereof, said outer shell having an inwardly extending flange around said access opening and defining a portion of the cabinet face.

2,943,392. TEMPERATURE CONTROL SYSTEM FOR AUTOMOBILES OR THE LIKE. Eldon D. Raney, Columbus, Ohio, assignor to Ranco Inc., Columbus, Ohio.

7. In combination with a valve, a first lever, an element for actuating said lever, a second lever pivoted intermediate its ends on said first lever and connected with said valve to actuate said valve, two vapor filled ex-

pansible devices attached to said first lever and engaging said second lever on opposite sides of the pivot therefor, and means to shield one of said devices from ambient air streams.

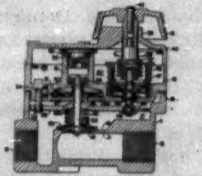


and means to shield one of said devices from ambient air streams.

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

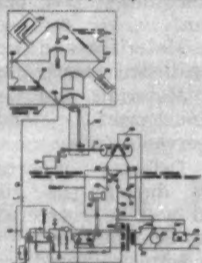
Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D.C.

2,943,323. THERMOSTATIC CONTROL DEVICES. James C. Dobbin, Inglewood, Calif., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis.



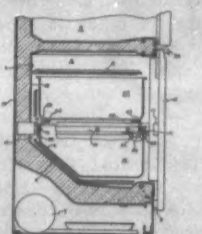
1. A control device comprising a control member having an actuating stem thereon, an annular abutment on said stem, a washer-shaped actuator for said control member being pivoted at its outer edge on a fixed pivot and having a plurality of radially and inwardly extending lines with their inner ends positioned adjacent to said abutment for engagement therewith.

2,943,324. DAMPER CONTROL FOR UNIT VENTILATOR. Forrest G. Baker, Davenport, Iowa, assignor to American Air Filter Co., Inc., Louisville, Ky.



2. A control system for a ventilator having a motor operated damper to close and open an air flow opening, comprising: an electric operating circuit system for operating the motor in accordance with the position of motor control switch means movable from a neutral position to damper closing and opening positions on opposite sides of neutral; balance means normally operative at a predetermined temperature condition to hold said switch means in neutral.

2,943,441. STORAGE CABINET DRAWER ASSEMBLY. William H. Jewell, Lyndon, Ky., assignor to General Electric Co.



6. A cabinet including walls defining a storage compartment having an access opening at the front thereof, a drawer assembly adapted to move within said compartment, said drawer assembly including a pair of opposed interconnected slides forming an open framework, a first storage pan including rim portions engaging said framework for supporting said pan within said open framework.

2,943,406. DOOR SECURING MEANS FOR REFRIGERATORS. Allan H. Johannessen, Framingham Center, Mass.,

assignor to the United States of America as represented by the Secretary of the Army.



1. A latch mechanism comprising a frame adapted to be mounted on the inner side of a door, a latch member

slidably mounted in said frame for movement between a door-latching position and a retracted position, spring means urging the latch member towards the door-latching position, an arm pivoted intermediate its ends to said frame, one end of the arm being engageable with the latch member to move the same to said retracted position when the other end of the arm is moved toward the door.

"A CASE OF COOL JUDGMENT"

**FLO-COLD
DRINKMASTER
STAINLESS STEEL
CUBER — COOLER.**

SOLD THRU DEALERS ONLY
WRITE

**United Frigugator Engrs.
MENOMINEE, MICH.**

AVAILABLE IN SIZES 4 to 10 FT.

Does Your Appliance Carry This

Seal of
Quality?

THE MOTOR USED IN
THIS EQUIPMENT IS PROTECTED
AGAINST OVERLOADS, LOW VOLTAGE,
OVER-VOLTAGE WITH A
MIGHTY MITE
THERMAL PROTECTOR

**MECHANICAL INDUSTRIES PRODUCTION CO.
223 ASH STREET • AKRON, OHIO**

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SOUTHERN CALIFORNIA manufacturer's representative now calling on mechanical engineers, heating, air conditioning, and refrigeration contractors and wholesalers desires additional exclusive lines in commercial and industrial equipment. We are young and aggressive with a good following. Send catalogs and sales policy to BOX A6099, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE engineer—Over 10 years in commercial refrigeration installation and service. Equipment sizes ¼ h.p. to include 75 h.p. Member R.S.E.S. Presently employed as service manager for wholesale-retail food chain. Desire relocate Southwest. Excellent references. Available within 60 days. Write BOX A5101, Air Conditioning & Refrigeration News.

AMBITIOUS, GRADUATE mechanical engineer, ten years' diversified engineering-business experience includes 5 years in air conditioning. Thorough knowledge of contracting—sheet metal, wiring, piping, and installation. Experience with manufacturer includes production engineering, field testing, and manual writing. Seeking career in air conditioning sales and application. BOX A5102, Air Conditioning & Refrigeration News.

AIR CONDITIONING and commercial refrigeration—installation, service and supervision. Thoroughly experienced with know-how in this industry. Service trouble shooter—line, low voltage and pneumatic control systems. Over 20 years in field, in New York City. Age 42 perfect health. Will relocate, West Coast preferred. Resume and picture. BOX A5104, Air Conditioning & Refrigeration News.

EXCELLENT AIR conditioning background of 20 years. Seeking position with national manufacturer offering opportunity in management or sales engineering with O.E.M. accounts. Mid-Western states preferred. Married, will re-locate. BOX A5106, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

PRODUCTS SPECIALISTS needed by leading air conditioning manufacturer. Expanding position covering all areas related to product development, application and salability in liaison between Sales and other company divisions on packaged liquid chillers, packaged air conditioners and air handlers. Excellent opportunity with growing company. Address replies with complete

summary of personal history and work experience to Mr. John P. Campbell, ACME INDUSTRIES, INC., 600 N. Mechanic Street, Jackson, Michigan.

SALES ENGINEER wanted for Chicago area. We represent a complete line of heating, cooling and air conditioning products. Unlimited opportunity for right man. Write or call for interview. HEATING & COOLING PRODUCTS, 1680 South Michigan Ave., Chicago 16, Illinois. Telephone WABash 2-7890.

HAVE OPENING for qualified field representative capable of appointing distributors, helping them plan stores, and serving existing customers. Territory Illinois, Wisconsin, Iowa, Indiana. Not necessary live in the Chicago area; could work from central Illinois or Indiana. Present representative being promoted, creating this opportunity with a fast-growing company. Write WARREN REFRIGERATORS, P. O. Box 1436, Atlanta, Georgia.

SALES ENGINEER for Dayton, Ohio territory to take over already established contacts with architects, consulting engineers, plant engineers and mechanical contractors in the sale of air moving and conditioning equipment. This is an excellent opportunity for an unlimited income. Write P. O. BOX 43, Cincinnati 33, Ohio.

EXPERIENCED GRADUATE product design-applications engineer, who is planning to re-locate in the Southwest, to take engineering responsibility for growing Southwestern manufacturer of central air conditioning air-cooled systems. Sales experience helpful. BOX A5105, Air Conditioning & Refrigeration News.

FIELD SERVICE engineer wanted for the eastern part of the United States. Age under 40. Position pays salary and expenses, provides insurance, hospitalization, and vacation with pay. Applicant must be free to travel in a limited territory. Good personality, 10 years of commercial installation and service experience is required, including working knowledge of electricity. Give full details of your background and experience and enclose small professional photograph and telephone number in first letter of application. Give five references. BOX A5103, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

USED AND new compressors, condensing units, valve plates. Give full description as to model no., horsepower, voltage, etc. UNITED ELECTRIC & REFRIGERATION, 514 W. 12th Street, Los Angeles 15, California.

EQUIPMENT FOR SALE

MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel \$33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

CALGON[®] ALGAECIDE

... provides an effective way to rid a cooling tower system of algae and slime growths. Positive action Calgon Algaecide is easy to use, and to handle; its periodic addition will help keep the system at top efficiency. It

KILLS ALGAE FAST

Algaecide is one of Calgon's Big 3 cooling water treatment products. It will pay you to use all 3—

CALGON[®] SCALE REMOVER makes it easy to clean a system quickly and safely. Corrosion inhibitors protect system. Built-in pH indicator shows how much Scale Remover to use, and helps tell when system is clean.

MICROMET[®] PLATES inhibit further formation of scale and protect against corrosion. One charge lasts a whole season in most systems.

SEE YOUR
REFRIGERATION
WHOLESALE
FOR CALGON'S BIG 3



and for these other quality Calgon products:

BANOX[®] quickly forms a protective film on metal surfaces. Should be used at Spring start-up, after acid cleaning, and at shutdown.

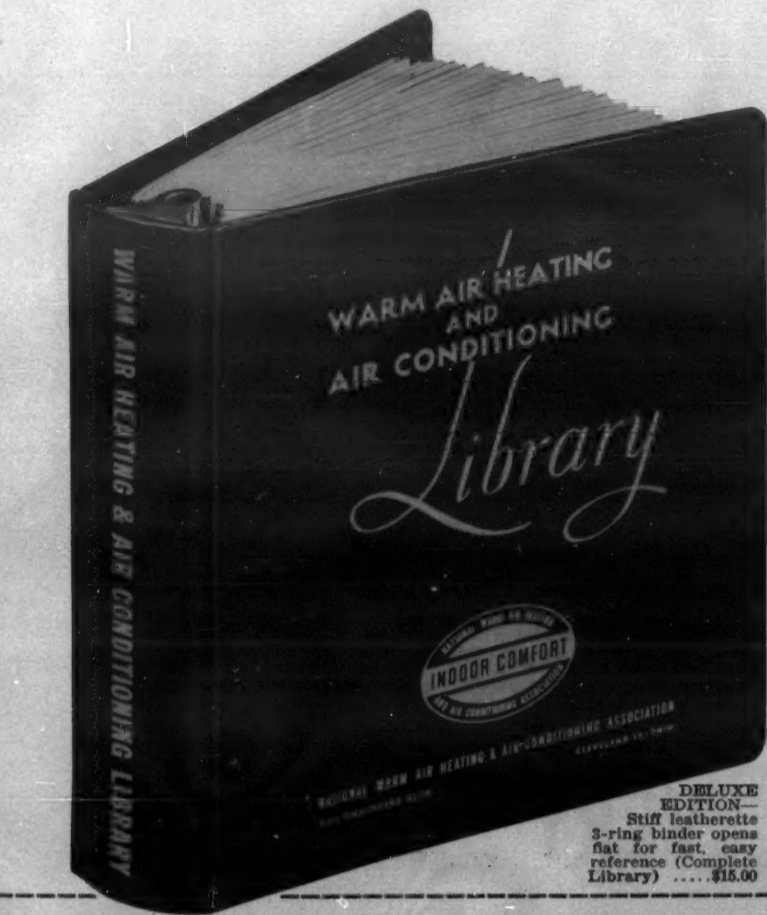
CALGON GAS LEAK DETECTOR—for fast detection of gas leaks.

CALGON WATERLESS HAND CLEANER—removes all kinds of dirt quickly and easily.

*T.M. Reg. U.S. Pat. Off.

CALGON COMPANY

DIVISION OF HANAN CHEMICALS & CONTROLS, INC.
HANAN BUILDING, PITTSBURGH 30, PENNSYLVANIA
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
IN CANADA: HANAN CORPORATION (CANADA) LIMITED, TORONTO



NOW— Air Conditioning & Refrigeration News brings you A LIBRARY OF HEATING PROFITS

FOR: THE MAN WHO SELLS!
THE MAN WHO INSTALLS!
THE MAN WHO SERVICES!

If your livelihood depends on the fast-changing, highly competitive heating and air conditioning industry, you cannot afford to be without the profit-packed 1958 edition of the WARM AIR HEATING & AIR CONDITIONING LIBRARY!

The most comprehensive collection of usable facts contained in one bookshelf-handly source, the "handbook of the industry" is a complete design and installation guide that combines "know-how" with "how-to."

The result of a continually expanding research program devoted to guaranteeing greater income for the man who thoroughly knows this expanding industry, the WARM AIR HEATING & AIR CONDITIONING LIBRARY contains easily understood manuals and worksheets, plus up-to-the-minute articles on a variety of warm air heating applications.

For practical men looking for practical information on specific subjects, individual manuals are available at unit prices. Because these manuals are constantly revised and up-dated for maximum usefulness, check those you now have to be sure they are the latest editions.



WARM AIR HEATING & AIR CONDITIONING - LIBRARY MANUALS

Widely accepted as standards of design, engineering and installation by federal, state and local officials, colleges and universities. They are especially prepared for use as field reference books, and for home study, vocational and correspondence school study and dealer training programs.

Warm Air Heating and Air Conditioning Digest...\$1.25
Ideal for new men entering industry and as a refresher course for experienced men. . . . Basic principles of heat transfer, comfort, air-flow in ducts, perimeter heating and other subjects. (1st Edition)

Manual 1—How To Make a Comfort Survey.... .75
A complete "how to" on: Checking single house plans for heat loss calculations. . . . Taking off heating plans from architect's blueprints. . . . Computing full areas and running foot of crackage of windows. (4th Edition)

Manual 2—How to Check Frame House Construction .75
Identifies various types of framing. . . . What to look for in construction which affects installation or performance of heating systems. . . . Installation practices. (4th Edition)

Manual 3—Calculating Heat Losses .150
Discusses design temperature and use. . . . Areas of heat transmitting surfaces. . . . B.t.u.h. heat losses. . . . Heat loss calculation and factors for all types of building materials and construction methods. (6th Edition)

Manual 3—Simplified Method .100
Ideal for determining heat losses for average residence. . . . Combines conduction and convection (infiltration) losses through windows and doors. (2nd Edition)

†Quantity prices, 5-100 copies\$50 each;
101-500 copies\$45 each; 501-1,000 copies
.....\$40 each; 1,001 and more copies.....\$35 each.

Manual 4—Warm Air Perimeter Heating..... 1.50
Design and installation data on perimeter-loop, perimeter-radial, crawl-space radial, crawl-space extended plenum, crawl-space trunk and branch, and crawl-space plenum perimeter systems using 5" and 6" pipes. (5th Edition)

Manual 5—Design and Installation of Gravity Warm Air Heating System..... 1.00
Location and size of warm air registers, return air intakes, and furnace. . . . System layout. . . . Installation and operation. (5th Edition)

Manual 6—Adjusting Air Conditioning Systems for Maximum Comfort .100
Greater comfort performance with winter, summer or year 'round systems. . . . Adjustment of room thermostat, controls, and system balancing. (3rd Edition)

Manual 7—Design and Installation of Warm Air Winter Air Conditioning Systems..... .75
Designing forced warm air systems for houses up to 120,000 B.t.u.h. heat loss. . . . Selecting furnace, blower, duct, and register size. . . . Locating registers and return intakes. . . . System layouts. . . . Installation and operation. (4th Edition)

Manual 7A—Design and Installation of Warm Air Ceiling Panel Systems..... .75
For residential and small non-residential structures with heat losses not exceeding 120,000 B.t.u.h. . . . Furnace and blower size. . . . Lay out of panel inlets and outlets. . . . Supply and return systems. . . . Panel construction. (3rd Edition)

Manual 8—Application Guide for Residential Central Air Conditioning Systems (Winter and Year-Round) .150
Components of winter and year-round air conditioning systems. . . . Proper operation. . . . Good design and installation practices cited and illustrated. . . . Use it to sell "quality" systems (5th Edition)

Manual 9—Design and Installation of Warm Air Winter Air Conditioning Systems and Year 'Round Air Conditioning Systems .125
Systems for residential, commercial, industrial and public buildings. . . . Also for structures where single-unit heat loss does not exceed 250,000 B.t.u.h. and where heat gain does not exceed 1.3 times sensible heat gain. (6th Edition)

Manual 9 Supplement .50
Perimeter warm air heating and ventilating systems for buildings constructed on concrete slab floors. . . . Can be used to encourage architects, heating engineers, and school boards to use perimeter systems. (1st Edition)

Manual 10—4 Inch Pipe Warm Air Perimeter Heating .100
Design and installation of systems using 4-inch round pipes for warm air runs. Systems described are "low velocity". . . . May be used with furnaces rated at total static pressure of 20" water gauge or comparable rating at sea level with temperature rise range of 70°-100° F. through furnace. (4th Edition)

Manual 11—Summer Air Conditioning..... 1.00
A tentative manual for design and installation of summer air conditioning systems for new and existing residences. . . . Heat gain calculation. . . . Design procedure. . . . Sizing of distribution systems. (3rd Edition)

And, Don't Miss the NEW Edition of AIR CONDITIONING THE HOME

A thorough study of the important year-round residential air conditioning industry, "Air Conditioning the Home" is published by the editors of AIR CONDITIONING & REFRIGERATION NEWS for heating, plumbing and air conditioning contractors, dealers, installers, and distributors. It gives selling points, outlines market conditions today and tomorrow, system operating characteristics, FHA requirements, cost estimating, and other vital and helpful information. A worthy addition to your library, it's 9" x 12" in size, well printed and abundantly illustrated. Use coupon to order copies for each key member of your staff. Only \$2.00 per copy.

Please send me the following books:

Quantity		Total
_____	Deluxe Edition, Complete Library @ \$15.00 ea.	_____
_____	Digest 1.25	_____
_____	Manual 1 .75	_____
_____	Manual 2 .75	_____
_____	Manual 3 1.50	_____
_____	Manual 3—(Simplified) .60*	_____
_____	Manual 4 1.50	_____
_____	Manual 5 1.00	_____
_____	Manual 6 1.00	_____
_____	Manual 7 .75	_____
_____	Manual 7A .75	_____
_____	Manual 8 1.50	_____
_____	Manual 9 1.25	_____
_____	Manual 9 (Supplement) .50	_____
_____	Manual 10 1.00	_____
_____	Manual 11 1.00	_____
_____	Air Conditioning the Home 2.00	_____

Air Conditioning & Refrigeration NEWS
450 West Fort Street, Detroit 26, Michigan

☐ I enclose check in full amount 9-15-58
☐ Bill me direct

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

AIR CONDITIONING
& REFRIGERATION

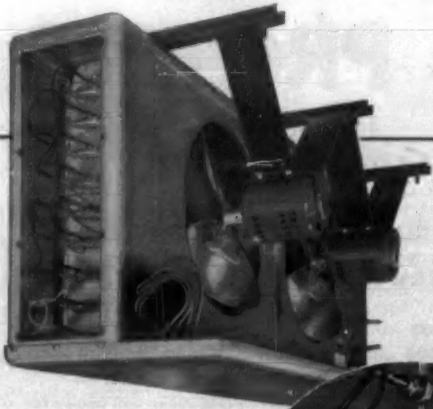
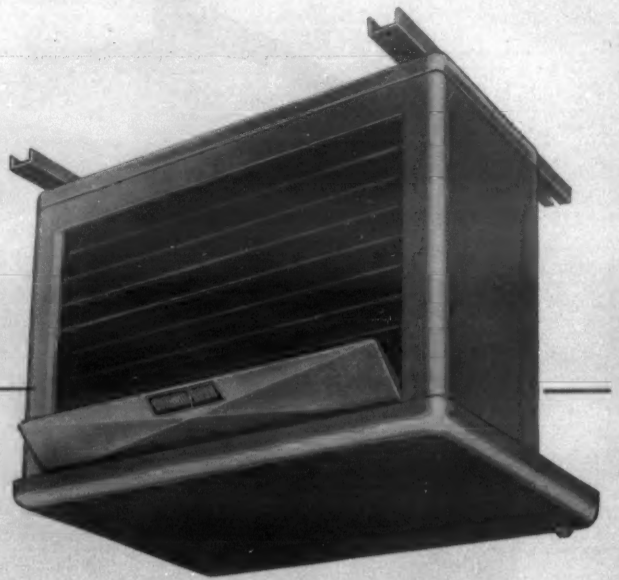
The Newspaper of the Industry

NEWS

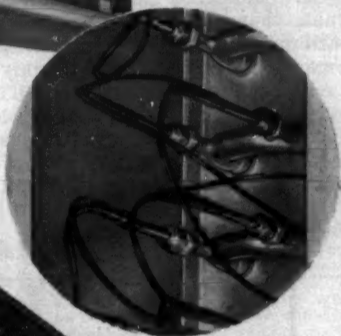


Dunham-Bush

ED



CLOSE-UP VIEW OF
MECHANICAL SEALING
OF HEATING ELEMENTS



**ELECTRIC DEFROST UNITS
MEET EVERY DEMAND
FOR EFFICIENT DEFROSTING**
at Merck-Sharp & Dohme

BIOLOGICAL LABORATORIES

Consulting Engineer.....ERNEST A. D'AMBLY, PHILA.
Wholesaler.....ACAR SUPPLY CO., PHILA.
Contractor.....WILLIARD, INC., PHILA.



'ED' 180 Electric Defrost Unit Cooler in Main
Biological Storage Vault.

Here at Merck-Sharp & Dohme Biological Laboratories, North Wales, Pa., to maintain the constant low temperatures necessary for the storage of polio vaccine there must be no defrost problems... and these Dunham-Bush Electric Defrost units insure trouble-free operation.

INNER-FIN Coil construction, exclusive with Dunham-Bush, permits the units to defrost from the inside... the most rapid, positive means of defrosting.

The heat source for defrosting is a specially designed heater cable installed within the inner tube. The greater surface area made possible by the Inner-Fin construction assures quick heat distribution, quicker defrosting, and minimum room temperature rise. The mechanical sealing of the heating elements gives positive protection against entry of any moisture into inner tube system. For more information on these units or other products in the extensive Dunham-Bush line contact your nearest Dunham-Bush Sales Engineer or write direct.



Polio vaccine storage in
low temperature room

10 HP Brunner condensing units

Dunham-Bush, Inc.

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

MICHIGAN CITY, INDIANA • MARSHALLTOWN, IOWA • RIVERSIDE, CALIFORNIA • BRUNNER DIVISION, UTICA, NEW YORK

SUBSIDIARIES

HEAT-X, INC.
BREWSTER, N.Y.

THE BRUNNER CO.
GAINESVILLE, GA.

DUNHAM-BUSH (CANADA), LTD.
TORONTO, CANADA

DUNHAM-BUSH, LTD.
LONDON, ENGLAND

BRUNNER CORPORATION (CANADA) LTD.
PORT HOPE, ONTARIO

DUNHAM-BUSH

heat-x

BRUNNER
SINCE 1906